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SPECIAL FEATURES IN THIS NUMBER, PAGE 20


# Rock Products

DEVOTED TO

Concrete and Manufactured Building Materials

Volume X. CHICAGO, ILL, MARCH 22, 1911 Number 9.



## CAROLINA PORTLAND CEMENT COMPANY

We are the largest distributers of Portland Cement, Lime Plaster, Fire-brick and General Building Material in the Southern States, and have stocks of Standard Brands at all of the Atlantic and Gulf Seaports, and at our interior mills and warehouses, for prompt and economical distribution to all Southern territory. Write for our delivered prices anywhere. Also Southern agents for the "Dehydratine's" waterproofing material. "Universal," "Acme" and "Electroid" Brands Ready Roofing. Get our prices.

Charleston, S. C. Birmingham, Ala. Atlanta, Ga. New Orleans, La

## DEXTER Portland Cement

THE NEW STANDARD

Sole Agents SAMUEL M. FRENCH & CO. Philadelphia

ULTRA HIGH GRADE
USED BY U.S. GOVERNMENT RAILROADS CITIES STEEL PLANTS
STANDARD PORTLAND CEMENT
STANDARD
WORKS LEEDS ALA.
GUARANTEED TO MEET ALL GOVERNMENT AND STANDARD REQUIREMENTS
SALES OFFICE BROWN-MARX BLDG BIRMINGHAM, ALA.
WRITE FOR PRICES.

## UNION MINING COMPANY

Manufacturers of the Celebrated

MOUNT SAVAGE FIRE BRICK

GOVERNMENT STANDARD.

DEVOTE a special department to the manufacture of Brick particularly adapted both physically and chemically to

**Lime Kiln and Cement Kiln Construction**

Large stock carried. Prompt shipments made. Write for quotations on Standard and Special shapes, to

**UNION MINING CO.,**
**Mount Savage, Md.**

CAPACITY, 60,000 PER DAY.
ESTABLISHED 1841.

## Phoenix Portland Cement

UNEXCELLED FOR ALL USES.

Manufactured by

PHOENIX PORTLAND CEMENT CO.

NAZARETH, PA.

Sole Selling Agent, WILLIAM G. HARTRANFT CEMENT CO.
Real Estate Trust Building, PHILADELPHIA, PENNSYLVANIA.

## Ottawa Silica Co.'s Washed White Flint Sand

Is used for sawing stone in more than a dozen states. Cuts more and lasts longer than any other sand on the market. Unexcelled for Roofing, Facing Cement Blocks, White Plaster, etc. Freight rates and prices on application.

OTTAWA SILICA CO., Ottawa, Ill.

FOR GRIFFIN TUBE AND BALL MILLS

## CHICAGO BELTING CO.

PURE OAK TANNED LEATHER BELTING

Send for Our Illustrated Catalog

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Branches: NEW YORK PHILADELPHIA NEW ORLEANS PORTLAND, OREGON

FOR DAMP PLACES

Uniformity — Fineness

ATLANTIC & GULF PORTLAND CEMENT CO

SALES OFFICE BIRMINGHAM ALA

PORTLAND TRADE COOSA MARK CEMENT

KIRKPATRICK SAND & CEMENT CO GENERAL SALES AGENTS

RAGLAND, ALA

Capacity, 3000 barrels daily

## HARBISON-WALKER

LIME AND CEMENT KILN LININGS

YOU *know* what the linings for your cement and lime kilns cost per thousand brick but *do* you know how much per *ton* output? *That* is the cost that is vital, that's why we are anxious you *should* know. Write us.

Harbison-Walker Refractories Co.

PITTSBURGH :: :: PENNSYLVANIA

HIGHEST GRADE PORTLAND CEMENT MANUFACTURED

ALLENTOWN PORTLAND CEMENT COMPANY

CAPACITY 1,000,000 BARRELS YEARLY

## A PERFECT RECORD FOR TEN YEARS

IN ALL KINDS OF CONCRETE WORK

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Manufacturers of the

**Celebrated Limestone Brand of Portland Cement**

LIMESTONE BRAND — STRENGTH, DURABILITY AND FINENESS — PORTLAND CEMENT.

Used by the Railroads in Kentucky, Ohio, West Virginia, and Virginia during the past five years.

Cement as finely ground as any on the market.

Guaranteed to pass all the standard specifications.

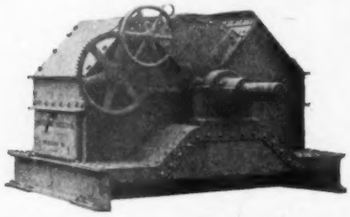
Plant located at Ironton, O., within easy access to seven States, namely, Ohio Indiana, Kentucky, West Virginia, Virginia, Tennessee and North Carolina.

Shipments via the N. & W. Ry., C. & O. Ry., C. H. & D. Ry., D. T. & I. Ry., or Ohio River. **Write for Prices**

**The Ironton Portland Cement Co.**

**Ironton, Ohio**

## "PENNSYLVANIA" HAMMER CRUSHERS



**For Pulverizing Limestone, Lime, Cement Rock, Marl, Shale, Etc.**

Main frame of steel; "Ball and Socket" Self aligning Bearings; forged Steel Shaft; Steel Wear Liners; Cage adjustable by hand wheel while Crusher is running.

No other Hammer Crusher has such a big Safety Factor.

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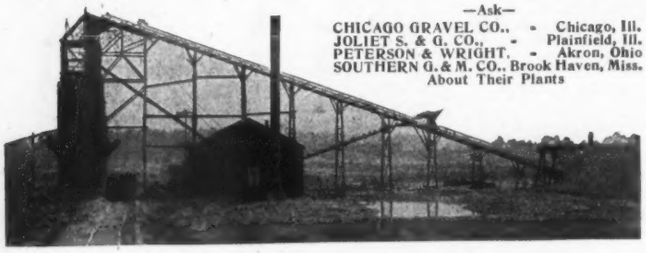
**New York** **Pittsburgh**

## GRAVEL WASHING PLANTS



—Ask—

CHICAGO GRAVEL CO., - Chicago, Ill.
JOLIET S. & G. CO., - Plainfield, Ill.
PETERSON & WRIGHT. - Akron, Ohio
SOUTHERN G. & M. CO., Brook Haven, Miss.
About Their Plants

Stone Crushing Cement and Power Plants

**J. C. Buckbee Company, Engineers, CHICAGO**

CHICAGO PORTLAND CEMENT COMPANY — CHICAGO — PORTLAND CEMENT — CHICAGO ILL.

## "CHICAGO AA"

**1,250,000 Barrels Annually**

HIGHEST QUALITY
"THE BEST THAT CAN BE MADE"

"Chicago AA" Portland Cement is best adapted for use in making concrete because of its absolute uniformity, fineness, prompt hardening and attractive color. "Chicago AA" is second to none, and every barrel is fully guaranteed to meet the requirements of the Standard Specifications.

**CHICAGO PORTLAND CEMENT CO.**

108 La Salle St. Booklets on Request. Chicago, Ill.

## "LEHIGH" PORTLAND CEMENT

LEHIGH PORTLAND CEMENT COMPANY — LEHIGH — PORTLAND — WORKS ORMROD LEHIGH CO. PENNA — CEMENT — ALLENTOWN, PA.

High Tensile Strength, Finely Ground
Light and Uniform in Color.
Manufactured by the

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**ALLENTOWN, PA.**

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**Write for Catalogue**

**Capacity, 8,000,000 Yearly**

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ALPHA PORTLAND CEMENT COMPANY — ALPHA — PORTLAND — GENERAL OFFICE EASTON, PENNA — CEMENT — MANUFACTURERS

## Alpha Portland Cement

**Best in the World for Sidewalks**

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NORTHWESTERN STATES PORTLAND CEMENT CO. — PORTLAND — NORTH & WESTERN — CEMENT — MASON CITY, IA. — REGISTERED TRADE MARK — Graham-Ijams

"THE BEST IS NONE TOO GOOD"

## HIGHEST GRADE of Portland Cement

**Every Barrel Absolutely Uniform.**

R. R. facilities especially adapted for prompt shipments in the northwest.

**Capacity 1,500,000 bbls. Yearly.**

**NORTHWESTERN STATES PORTLAND CEMENT COMPANY**

**MASON CITY, IOWA**

**USE**

## WABASH PORTLAND CEMENT

Best for all kinds of Concrete work

Great Strength and Durability. Fine Color and Uniformity

Specified by the Best Architects. Sold by the Leading Dealers.

**WABASH PORTLAND CEMENT CO.**

**Phone Main 859** **1824 Ford Bldg., Detroit**

Rock Products

DEVOTED TO

Concrete and Manufactured Building Materials

Volume X | CHICAGO, ILL., MARCH 22, 1911 | Number 9

# REINFORCED CONCRETE DOMES

## In the St. Louis Cathedral Exemplify Highest Type of Engineering Skill—Three Hundred and Sixty Tons of Reinforcement and Eight Thousand Cubic Yards of Concrete Used.

Now nearing completion in St. Louis, Mo., is the St. Louis Cathedral, the domes of which are the greatest reinforced concrete structures ever engineered since the building of the Parthenon in Athens in 438 B. C. In modern times, and since concrete has come to play such an important part in the ever increasing tide of building operations, it has been thought to be nearly impossible to construct a circular dome-shaped structure, of monolithic form, in concrete. This belief has been thoroughly dissipated, however, by the building of the reinforced concrete dome of this cathedral.

Construction work on the reinforced concrete slabs of the first floor was started in the fall of 1908, and it is only now, after two and one-half years of steady labor, that the outside shell of the main dome is nearing completion. The cathedral was built for the Arch-Episcopal See of St. Louis, Most Rev. John J. Glennon, Archbishop. Prominent architects who have visited the cathedral say that it is a marvel of strength, and illustrates fully the fine points of engineering which are embodied in its wall and reinforcements. The structural reinforced concrete in the building embraces all the possible forms to which reinforced concrete has ever been put in structural work. As the difficult construction work on the building progressed, it was found each day that new problems came up and had to be combated by some of the keenest engineering minds in the country. Some of the typical members of reinforced concrete construction which are exemplified in the cathedral are: reinforced concrete straight slabs, reinforced concrete arched slabs, reinforced concrete plates armed crosswise, straight and arched girders, reinforced concrete columns, vaultings, groined ceilings, gable roofs, conical roofs, arches, cantilevers, quarter spherical domes, half spherical domes and pendentifs, tension and compression rings, and stairs and stair balustrades.

The domes constitute the main feature of the structure; they rest on reinforced concrete arches of forty-eight foot span, which take their bearing on brick piers by means of a distributing reinforced concrete plate two feet thick. All of these arches were designed by the Voussoir theory, reinforcement being checked against the wind action.

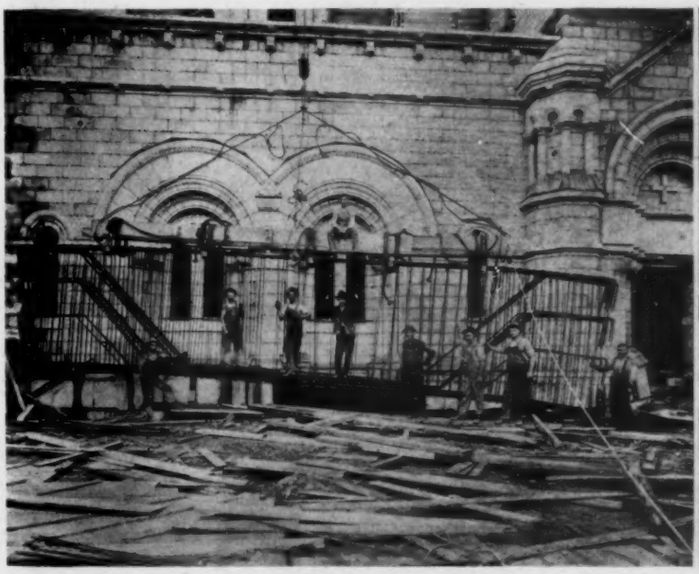
The arches supporting the small domes on north and south side form squares of fifty foot side, additional bearing for the dome above being secured by girders of twenty foot span running from arch to arch, across the corners.

The shell of these domes, which have a 50′ 6″ clear span, is four inches thick and self-supporting. The roofs over same are supported by means of reinforced concrete columns resting on top of the arches, on girders of 51′ 6″ clear span. The arches supporting the main dome in the center of the structure form a square of 80′ 6″ side, additional bearing for the dome being secured by girders of thirty-three foot clear span, running from arch to arch, across the corners.

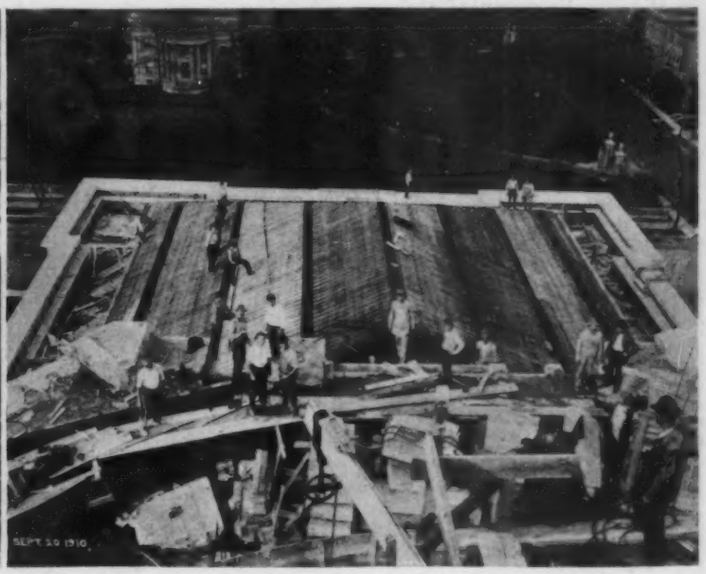
The inside shell of this main dome is four inches thick and is suspended from cantilevered rib-arches of eighty-five foot span; there are sixteen of them arranged in pairs on the lines of the octagon diagonals. On top of these ribs is arranged a system of vertical supports and horizontal bracing completed by circular beams supporting the outside shell of the main dome of ninety foot diameter, this shell being six inches thick, and terminates at the crown with a 1′ 6″ slab supporting the lantern and cross, the weight of which amounts to two hundred and fifty thousand pounds.

The stresses used in the design are those allowed under the St. Louis ordinance, viz.: 800 lbs. per square inch, extreme fiber stress on the concrete, and 20,000 lbs. tensile stress on high elastic limit steel, plain bars of round section being used throughout, there being three hundred and sixty tons of reinforcement and eight thousand cubic yards of concrete used in the work. The concrete mixture was

(Continued on Page 45.)



REINFORCEMENT OF GIRDER 40 FOOT SPAN SUPPORTING MAIN DOME.



REINFORCED CONCRETE ROOF OVER NORTH DOME SHOWING GIRDERS OF 51′ 6″ SPAN.

# Power & Mining Machinery Co.

MILWAUKEE, WIS. U. S. A.

District Offices:

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| *"Half the size, Half the weight; Half the height, Half the freight."* | **TO WHICH MIGHT ALSO BE ADDED:** | *"Half the efficiency, Half the life; Half the success, Double the strife."* |
|---|---|---|

All the above at the same price of a real crusher, too, such as the

## "McCULLY CRUSHER"

**McCULLY CRUSHERS ARE NOT SOLD BY RHYME BUT BY REASON**

By reason of their unequaled capacity and wearing qualities on rock and ore of any degree of hardness, and WITHOUT MELTING ANY BABBITT.

By reason of not requiring pumps for circulating the oil.

By reason of not requiring any cooling system for cooling the oil.

By reason of their unequaled efficiency under any and all conditions of service.

By reason of their unequaled economy due to minimum power, oil and repairs required.

By reason of many other "reasons",—too numerous to mention here, but which are contained in our new Catalog No. 4-R which is just off the press.

**DO YOU WANT IT? THEN SEND FOR IT. IT'S FREE.**

## Principal Products

ROCK CRUSHING MACHINERY MINING AND SMELTING MACHINERY

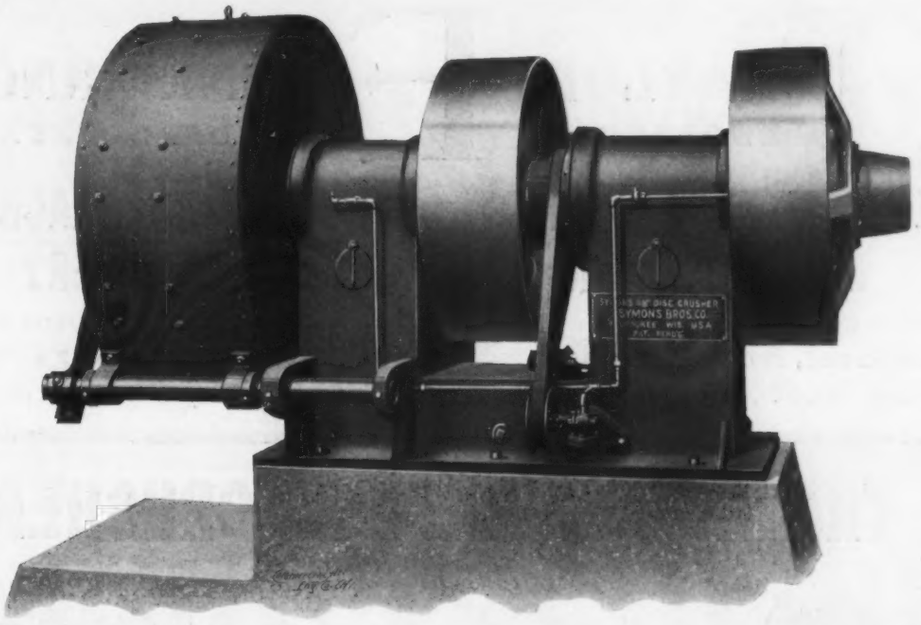
CEMENT-MAKING MACHINERY

WOOD IMPREGNATING PLANTS POWER TRANSMITTING MACHINERY

LOOMIS-PETTIBONE GAS GENERATORS

SUCTION GAS PRODUCERS

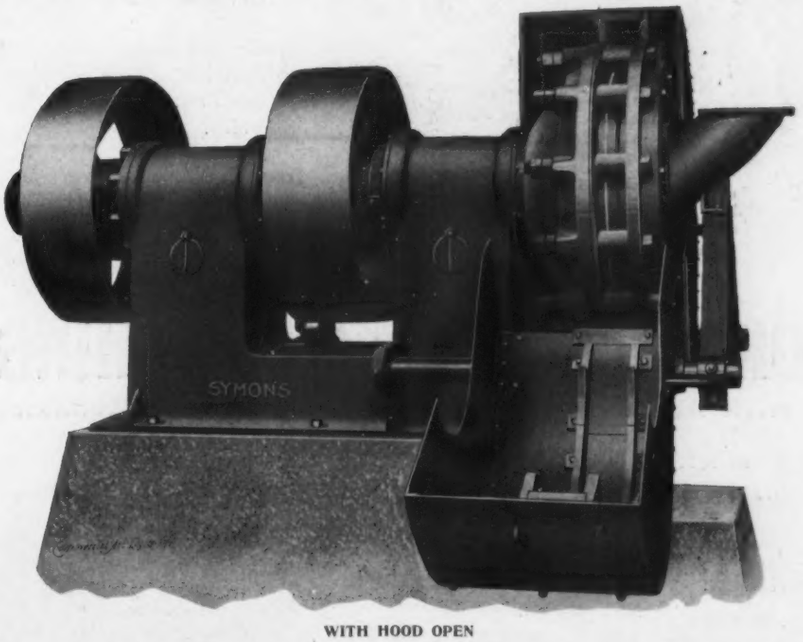
*Write for Catalogs on any of Above, Mentioning this Journal.*



# The Symons Disc Crusher

## Has Two Specialties:

1. Crushing boulders or gravel, wet or dry. 2. Reducing rejections from large breakers to ANY SIZE DESIRED between 3 inches and 5-16 inch.




WITH HOOD OPEN

Manganese Equipped, Durable, Great Capacity

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# THE TRAYLOR ENGINEERING CO.

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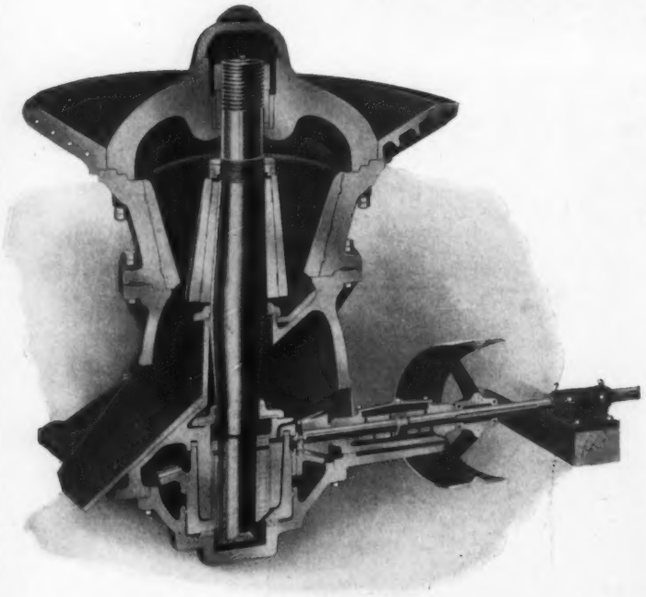
## TRAYLOR GYRATORY CRUSHER



A FEW IMPORTANT FEATURES FOUND IN OUR CRUSHER

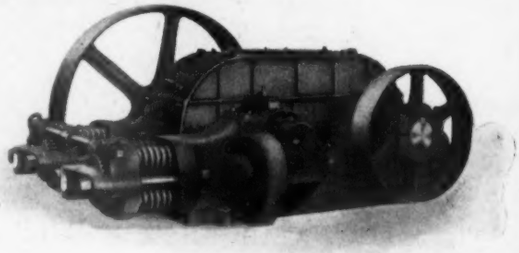
1. Main shaft suspended in the hub at the point of **least** gyration. Positive rolling surface.
2. The spider-hopper and concaves can be removed individually, **without removing** other parts of the crusher.
3. Spindle can rotate in **any direction,** as head is prevented from creeping or turning.
4. Large gear and pinion made of high carbon steel; gear **keyed** to eccentric.
5. Eccentric has a **far greater** bearing surface than is found in other makes of crushers.
6. Eccentric is supported in **diaphragm** of lower shell, thus insuring rigidity.
7. A reservoir of oil **encircles** the eccentric, acting as a perfect lubricant and as a positive cooling agent.
8. Double countershaft bearing is removable making it more convenient to rebabbitt.

## TRAYLOR IMPROVED HEAVY DUTY CRUSHING ROLLS

**WITH AUTOMATIC LATERAL SIDE ADJUSTING MECHANISM**

A FEW IMPORTANT FEATURES FOUND IN OUR ROLLS

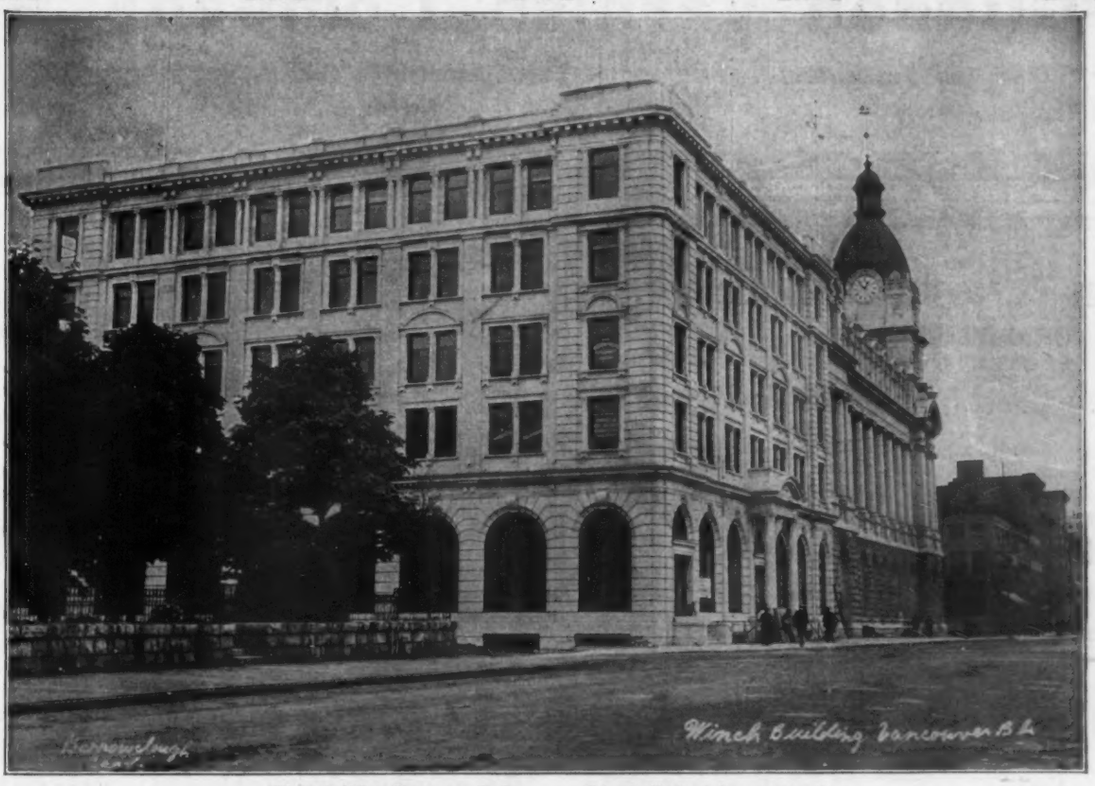
1. Only roll manufactured that has an automatic lateral side adjusting mechanism.
2. Tires wear evenly; that is, they do not corrugate, and thus never require machine dressing.
3. Largest capacity of whole life of tire, as tire may be worn down to approximately $\frac{3}{8}$" thickness.
4. Quick opening of rolls by means of end adjustment, which always keep the rolls parallel.
5. Adjustments are made with rolls while running and crushing as well as when they are idle.
6. Bearings last three times as long as bearings found in other makes of rolls.



Our latest Illustrated Catalog "G" just off the press illustrates and describes fully our line of Rock Crushing Machinery.

**ARE YOU INTERESTED? THEN SEND FOR IT**

# Triangle Mesh Concrete Reinforcement




Winch Building, Vancouver, B. C. Triangle Mesh reinforcement used.

Made by

## American Steel & Wire Co.

CHICAGO, NEW YORK, DENVER, SAN FRANCISCO.

WRITE FOR ILLUSTRATED PAMPHLET

United States Steel Products Co., 30 Church St., New York., Export Representatives.

# A Concrete Floor That Wears and Looks Like One of Tile

can easily be had by two applications of Glidden's Concrete FLOOR DRESSING. This sanitary coating keeps the cement dust from rising and injuring stock or machinery, prevents water, oil, grease and other stains from penetrating and staining the floor—makes the rooms in which it is used sanitary, lighter and brighter. It reduces vibration and noise, and produces a soft, easy tread.

The grinding action of shoe heels and heavy trucks will not effect it. It wears like iron. It penetrates the pores of the floor surface and binds with it, producing a beautiful high gloss finish similar to tile.

## Glidden's Concrete Floor Dressing

is made in tan, terra-cotta, light drab, transparent and white. Has large covering capacity and can be easily applied with a brush like paint or varnish. It's better than paint for wood floors.

Let us send a free sample so you can prove by test the wonderful results it gives. Architects who specify and builders who use Glidden's Concrete Floor Dressing gain in pleased clients. Write to-day for color card and booklet with specifications.

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**Factories: Cleveland, Ohio; Toronto, Ont.**
**Branches: New York, Chicago**

**Largest Manufacturers of Varnish and Concrete Finishes in the World**

## Farnam "Cheshire" Lime Co.

OF CHESHIRE, MASS.
MANUFACTURERS OF THE

**Celebrated Cheshire "Finishing" Lime**

Well known throughout New York and the Eastern States as the finest finishing lime manufactured. The special feature of this lime is its quick and even slacking, thus preventing any cracking or checking when put on the wall. It is the best lime used in the country today for all

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Finishing, Common, Hydrate, Agricultural.

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39 Cortlandt Street, - - - NEW YORK

THE ORIGINAL

## BAY STATE Brick and Cement Coating

is a protection to concrete against dampness. It also can be used on stucco and brick where tints are desired.
It does not destroy the desirable texture of either concrete or stucco, is weather proof and has great resisting qualities to acid.
Architects, contractors and engineers everywhere are specifying it.
Address Department 7 for a book which gives full particulars and shows the class of construction on which it is used.

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**PAINT AND VARNISH MAKERS AND LEAD CORRODERS**
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We have brought the price of

# CEMENT WATERPROOFING

down to a reasonable basis and will keep it there. Overtures to buy us out, attempts at intimidation and ambiguous statements will have no effect.

## WE ARE HERE TO STAY

Our compound at seven cents per pound, f. o. b. any railroad station in the United States, waterproofs any brand.

## McCORMICK WATERPROOF PORTLAND CEMENT COMPANY

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**WATERPROOFING** for CEMENT AND CONCRETE

**No More Wet Basements! No More Damp Cellars!**

A Cement Mortar Coat on the basement walls will absolutely prevent dampness. It is a cream-white paste, readily dissolved in water, and this mixture, instead of plain water, is used in mixing Cement Mortar or Concrete.

**Ceresit Waterproofing Co.**

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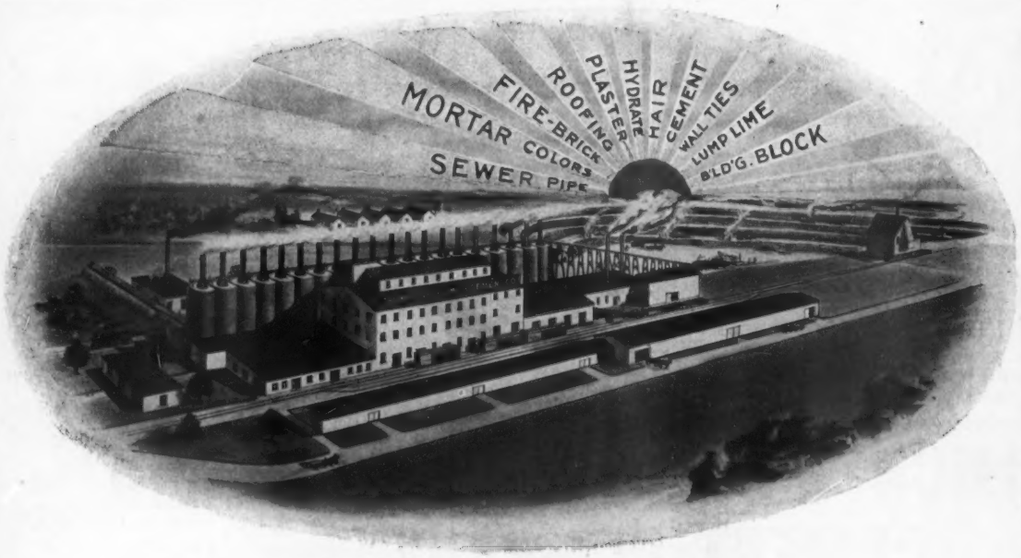
**HIGH MAGNESIA FINISHING LIME**

**Manufactured by the**

## National Mortar & Supply Company

**Office at Pittsburg, Pa. Works at Gibsonburg, Ohio**

**Enlarged capacity**




**White Enamel Finish**

***LET US PUT A FEW RAYS OF SUNSHINE IN YOUR BUSINESS***

***"THE BEST UNDER THE SUN"***

## THE WOODVILLE LIME & CEMENT CO.

*Manufacturers and Wholesalers of* **BUILDING MATERIALS**

**Mill at Woodville, O. Offices: 1341-48 Nicholas Bldg., Toledo, O.**

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MANUFACTURERS OF AND WHOLESALE DEALERS IN

Ohio and Indiana White Finishing Lime, Ground Lime, Lump Lime, Fertilizer, Hydrate Lime, Cement, Plaster, Hair, Etc., Etc.

MAIN OFFICE: Huntington, Ind. Branch Offices: Marion, Ohio.

Capacity 8000 Barrels Per Day

"IF IT IS **LIME** WE MAKE IT"

Lump - Barreled - Hydrated - Ground

STRONGEST IN OHIO

We are not connected with any Trust or Combination

WRITE US
PHONE US

The Scioto Lime and Stone Company, Delaware, Ohio

# CROWN HYDRATE

HIGH CALCIUM HYDRATED LIME

At present prices you can waterproof, improve the color and strengthen the texture of all cement construction and actually **save money**, because the Hydrate **replaces** the same amount of cement (15 to 25%).

Kritzer Vacuum Process

MARBLEHEAD LIME COMPANY

KANSAS CITY CHICAGO

# GLENCOE LIME AND CEMENT CO.

Manufactures LUMP AND HYDRATED LIME AND LIMESTONE FOR FLUXING

Dealers in LUMP AND HYDRATED LIME, CEMENT, PLASTER, MORTOR COLORS, METAL LATH, CORNER BEAD, CHANNEL IRON, ETC.

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Along the Southern Railway and Mobile & Ohio Railroad there are splendid deposits of kaolins; of fire, tile, and brick clays; of cement rock; building sand; building stone; and a number of most desirable sites where local advantages are all sufficient to ensure labor and transportation meeting all requirements. Those looking for best locations where the raw supplies are at hand should write, for detailed information, to

M. V. RICHARDS
Land and Industrial Agent, Southern Railway
1370 Pennsylvania Ave., WASHINGTON, D. C.

OR

CHAS. S. CHASE
Western Agent
Room 702, Chemical Bldg., ST. LOUIS, MO.

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Brown Hydraulic Lime, Austin Hydraulic Cement, Jasper Wall Plaster, Brick, Stone

CEMENT WORKS: Austin, Minn.
PLASTER MILL: Ft. Dodge, Iowa
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MANKATO, MINN.

Tell 'em you saw it in ROCK PRODUCTS

## Tiger Brand White Rock Finish

has been tested over and over again by masons and plasterers everywhere. Their unanimous opinion is that a more

## Uniform, Dependable Product

is not produced. No reliable builders' supply dealer can afford to handle other than standard goods. Tiger Brand White Rock Finish is the standard by which all other brands are measured. May we send you a quotation?

**The Kelley Island Lime & Transport Co.**
Cleveland, Ohio

## MONARCH HYDRATED LIME

**Cheaper and Better than LUMP LIME**

Its value to you is greater because—
—It costs less to handle—
—It can be thoroughly soaked in 24 hours—
—No screening required—
—Carries more sand—
—Gauges with a third less plaster—
—Spreads further—
—Easier—
—Will not air slack—

You will be a MONARCH MAN if you once try MONARCH HYDRATED LIME.

Our prices satisfies. Write us.
"We ship sudden"

**The National Lime & Stone Co.**
CAREY, OHIO

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SIMPLE :: SECURE :: UNIFORM :: RAPID :: QUICKLY UNTIED

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110 East 23rd Street, New York

## MITCHELL LIME

**Is Chemically Pure and Practically Free from Waste**

The Strongest White Lime on the Market. Used and recommended by Sand-Lime Brick Manufacturers, Chemists, Soap and Glue Works, Plasterers and Masons.

*Prices Cheerfully Submitted*

**Mitchell Lime Company**
MITCHELL, :: :: :: INDIANA

# Hydrated Lime

## Bulletin No. 38

### Why Hydrated Lime Should Be Used

It possesses all the good qualities of quick lime without any of its drawbacks.

It is all lime putty. Properly prepared

Hydrated Lime has all the overburned particles, such as grit, stone, air slacked lime, etc., removed in process of manufacture.

It can be purchased in quantity

At a better price and

The Dealer takes no risk of losing anything on the transaction as be buys only powdered lime putty which can be kept indefinitely.

A satisfactory job is always secured when Hydrated Lime is used.

There is no possibility of pitting or popping in any plastering job as all the impurities have been removed in manufacturing.

Time, labor, money is saved in all brick work, as the cost and labor of slacking is eliminated.

One man, consequently, can make, temper and carry the mortar to the wall.

A larger field is opened to the dealer.

It can be sold where it would be impossible to dispose of quick lime; for instance, in dry dusting, in poultry houses, making tree sprays, prepared white washes, disinfectants, cleaning powders, and in numerous other products.

In Concrete Works, its advantages are many and manifold.

1—The concrete works easier under the trowel. It finishes easier.

2—It prevents drying out as quickly as it otherwise would.

3—It improves the color of the finished work.

4—It makes the concerte impervious to water.

5—It improves the strength.

Bear these three facts in mind:

1—The risk of loss incident to the handling of lime with hydrated lime is reduced to a minimum. Right here is a profit to the dealer in hydrated lime that the man who refuses to handle it doesn't enjoy.

2—A more satisfactory product is offered to the trade and complaints and allowances to contractors are eliminated. Here is more money which ordinarily is figured by the dealer as profit when he sells the lime, but which he usually doesn't realize when the contractor pays his bill.

3—A broader market is offered and a steadier all around business can be enjoyed as well as a wider range of trade reached.

Now with these three factors in its favor can any one conceive of the possibility of hydrated lime not succeeding and being more and more used every year?

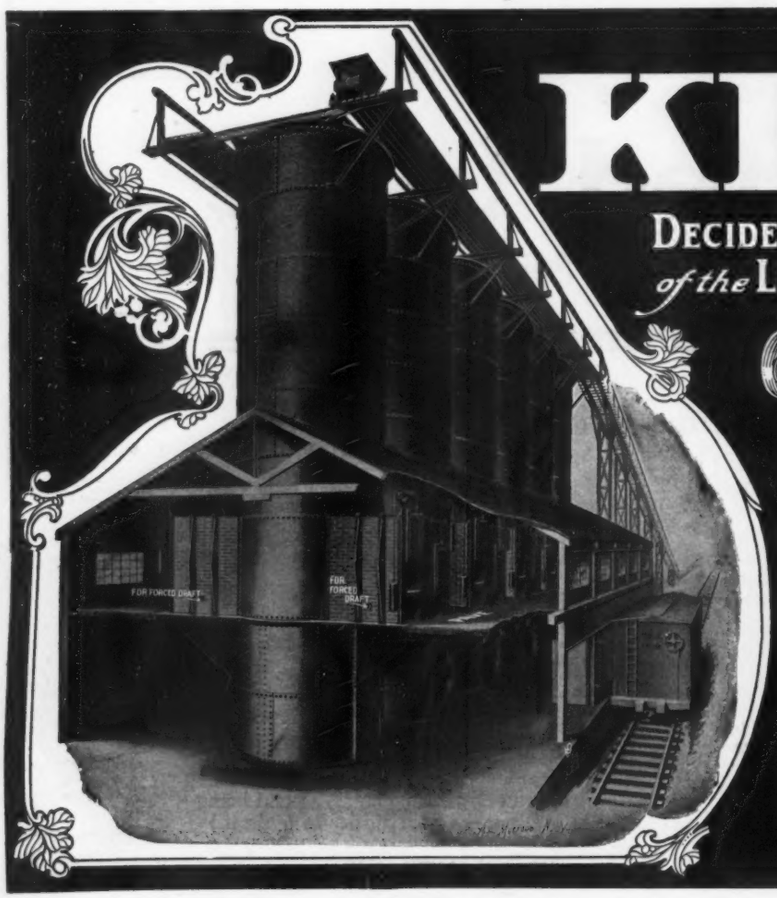
**Our Business** is the designing and constructing of Hydrating Plants.

To make this up-to-date material, we have the only process that has proved successful in hydrating a High Calcium and Dolimite limes.

It requires about three or four months to build a plant; why not take this matter up with us now and get ready for business?

## The Kritzer Company

**115 Adams Street** **CHICAGO, ILLINOIS**



# KILNS

DECIDE *the* EARNING CAPACITY *of the* LIME MANUFACTURING PLANT

THE KEYSTONE LIME KILNS
(Patented)
*are famous money makers and express the highest type of modern developement. There's none quite so good, and the price is right.*

FULL PARTICULARS WILL BE CHEERFULLY FURNISHED

STEACY-SCHMIDT MANUFACTURING CO.
YORK·PENNA

# To Hydrated Lime Manufacturers

**PLASTICITY** in a wall plaster means **Success.** The more plastic the material the less time required to cover a given area, and the laborer's **time** is what **costs.**

**PLASTICITY** means ability of the material to carry a great quantity of sand and still retain the smooth, fat working qualities of lime putty.

The **PLASTICITY** of your Hydrated Lime can be made equal to that of your lump lime mortar by the addition of a comparatively small amount of aluminous accelerating material known to the trade as **"ALCA."** The quality of the finished product — Alca Lime Plaster — being directly proportionate to the quality of the hydrated lime used as a base.

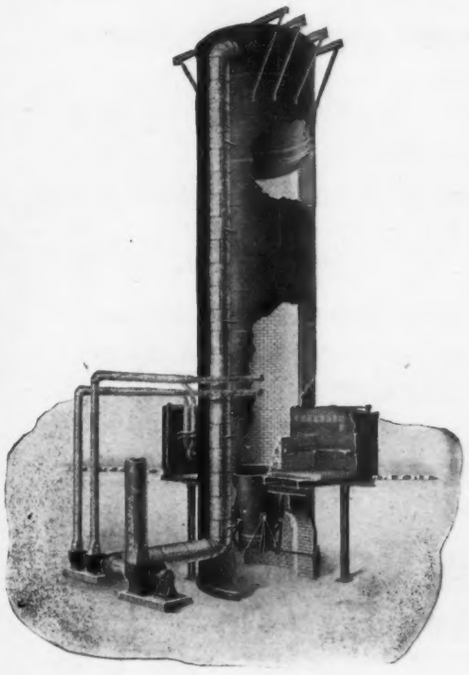
How often have you failed to obtain a repeat order owing to the lack of Plasticity in your hydrate? **"ALCA" Lime Plasters** are firmly established after the first sale.

Write us for further particulars on how and why Hydrated Lime plus Alca — Alca Lime Plaster — is replacing all other wall plasters.

## ALUMINATE PATENTS COMPANY

**2211 Chestnut Street** **Philadelphia, Pa., U. S. A.**

# LIME AT LOWEST COST



We have so designed the Doherty Producer Fired Kiln, the Doherty-Eldred Coal Fired Kiln, and the Doherty Oil Fired Kiln, as to afford in fullest degree the four essentials of economical lime manufacture—large capacity, uniform quality, low fuel consumption and low up-keep cost.

**With our kilns, you will know that you have the best equipment which engineering skill can produce.** The question of profitable operation is up to you.

But we will help you on this, too. For, as our customer, you can avail yourself of our advice and experience as combustion engineers.

**We offer not simply equipment, but service as well.** Write us for Bulletin No. 4—"Lime Kilns and Equipment."

## IMPROVED EQUIPMENT CO.

**COMBUSTION ENGINEERS**

**Executive and Sales Offices, 60 Wall Street, NEW YORK**

# The Bradley Producer

## Gas Process for Burning Lime.

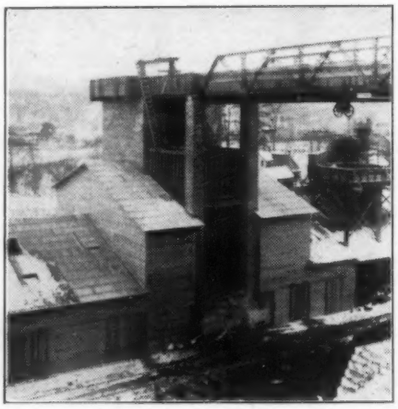
Four and three-quarter pounds of lime to one pound of coal on a large output is now being secured every day.

**Does that look like economy to you?**

RESULTS GUARANTEED

## Duff Patents Company

**Frick Building Pittsburg, Pa.**



**E. Schmatolla**
**Chemical Engineer**
of 150 Nassau Street, New York

Designs and builds, since eighteen years, LIME KILNS, particularly with natural draft gas producers, and guarantees in most cases on kilns for a daily output of 30 tons or more at least five tons of burnt lime for one ton of coal. More than hundred gas lime kilns built all over the world for all kinds of rock and fuel.

**Mr. Lime Manufacturer:**

¶Do you know that every lime plant that employes the BATES SYSTEM of bagging their lime is doing it at a LESS COST than you do if you do not employ that SYSTEM? IT'S A FACT. ¶Our lime, cement and plaster sacks are giving universal satisfaction. We GUARANTEE the quality.

**The Urschel-Bates Valve Bag Co.** TOLEDO, OHIO

# FOR BLASTING

**Use the World's Only Successful Substitute for Dynamite**

TRADE MARK **DYNALITE** REGISTERED

TWO PATENTS

For Crushed Stone and Silica Sand Quarries, Contractors, Stump Blasting, Ore and Slag Shooting, Clay and Shale, Oil and Gas Wells, Etc.

DISCRIMINATING CONSUMER.
WEIGHING THE POINTS OF SUPERIORITY

Water Grade
DYNALITE "Weigh" a-head

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Water Grade—No Thawing.

Manufactured by **The American Dynalite Co.**

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**ELYRIA, OHIO**

GREATEST ROCK BREAKING POWER

IS WHAT YOU WANT

INDEPENDENT DYNAMITE

WILL SAVE YOU MONEY AND PLEASE YOU EVERY TIME

Independent Powder Co.
of Missouri

JOPLIN, MO.
ST. LOUIS, MO.

MAGAZINES AT ALL IMPORTANT POINTS

DU PONT

MONOBEL NO. 1

An ideal explosive for quarrying

Does not require thawing no matter how cold the weather

*Write for Particulars*

E. I. DU PONT DE NEMOURS POWDER CO
Established 1802 WILMINGTON, DEL., U. S. A.

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AETNA L. F.

A low freezing dynamite
Hard to freeze; when frozen, thaws easily and quickly
A superior explosive for general blasting work in hot weather as well as cold
Aetna reliability and uniformity is fully retained in this brand

MADE IN ALL GRADES FROM 25% TO 60%

THE AETNA POWDER COMPANY

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Knoxville, Tenn. | Chattanooga, Tenn. | Iron Mountain, Mich. | Xenia, Ohio

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# DRYERS
RUGGLES-COLES ENGINEERING CO.
NEW YORK CHICAGO

DIRECT HEAT
# DRYERS
FOR
BANK SAND
GLASS SAND
ROCK, CLAY
COAL, ETC.
All Mineral, Animal and Vegetable Matter.

We have equipped the largest plants in existence and our dryers are operating in all parts of the world. Write for list of installations and catalogue S. C.

**American Process Company**
68 William Street, NEW YORK CITY

*Irvine Flats, San Francisco, Cal.*
*Medusa White Portland used for entire exterior finish*

MEDUSA PRODUCTS
WHITE PORTLAND CEMENT
WATERPROOFING
WATERPROOFED CEMENT

**MEDUSA WHITE PORTLAND CEMENT**
FOR EXTERIOR AND INTERIOR WORK
Equal or Superior to any other White Portland Known

**MEDUSA WATERPROOFING**
(Patented April 23, 1907)
Makes Concrete Impervious to Water and gives absolute Permanent Results.

**Medusa Gray Waterproofed Cement**
Gray Portland Waterproofed with our famous waterproofing and ready for use.

Obtain Illustrated Circular, Samples and Prices

**Sandusky Portland Cement Co.,** SANDUSKY OHIO.

WHITE PORTLAND CEMENT — SANDUSKY PORTLAND CEMENT CO. — SANDUSKY, OHIO. — STAINLESS.

**THE CUMMER DRYERS**
For Mechanically Drying Everything. The F. D. Cummer & Son Co., Cleveland, O.

FOR IMMEDIATE SHIPMENT NEW AND REBUILT MACHINERY FOR CONTRACTORS AND QUARRY EQUIPMENT.
Two Rebuilt Western and Two Rebuilt New Era Elevating Graders, good as new. Twenty Rebuilt Western Wagons. Three 13-Ton Stone Bins. Two No. 2 Gates Crushers "D" Style. Rebuilt Jaw Crushers and Reversible Road Machines of Standard Makes.
HEADQUARTERS FOR Concrete Mixers, Wheelbarrows, Gasoline Engines, Gyratory and Jaw Crushers, Cars, Hoists and everything in Quarry Equipment.
Write us for catalogue and prices.
THE WILLIAMS CONTRACTORS' SUPPLY CO., Columbus, Ohio.

TRADE MARK — ROTARY

**WORRELL'S ROTARY DRIERS**
For SAND, CLAY, ROCK PRODUCTS and OTHER GRANULAR MATERIALS
Excellent Results, Moderate in Cost and Expense of Operation
In sending for prices and printed matter describe your material fully, giving its percentage of moisture, required hourly capacity, etc.
**S. E. Worrell**
HANNIBAL, MO.
*(FIRST MANUFACTURER OF ROTARY FIRE DRYING MACHINES IN THE U. S.)*

**Anchor Brand Colors**
For Mortar, Cement and Brick
Brown, Black, Red and Buff
Strongest and Most Durable
Manufactured by **C. K. Williams & Co.**
Correspondence Solicited Easton, Pa., U. S. A.

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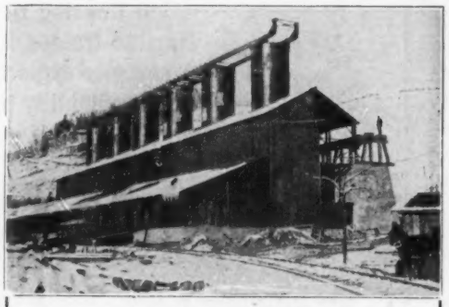
use our
**CLASSIFIED SECTION**



Lime Kilns and Plant of Blair Limestone Co, Canoe Creek, Pa.
Designed by
Henry S. Spackman Engineering Company
42 N. 16th Street Philadelphia, Pa.

# ROCK PRODUCTS

ESTABLISHED IN LOUISVILLE, KY., 1902.

DEVOTED TO CONCRETE AND MANUFACTURED BUILDING MATERIALS.

**Volume X.** **CHICAGO, MARCH 22, 1911.** **Number 9.**

Publication day 22nd of each month.

THE FRANCIS PUBLISHING COMPANY

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EASTERN DEPARTMENT.

RALPH PEVERLEY, Manager, Room 500, 110 W. 34th St. New York N. Y.

Communications on subjects of interest to any branch of the stone industry are solicited and will be paid for if available.

Every reader is invited to make the office of Rock Products his headquarters while in Chicago.

Editorial and advertising copy should reach this office at least five days preceding publication date.

TERMS OF ANNUAL SUBSCRIPTION.

In the United States and Possessions and Mexico.....$1.00

In the Dominion of Canada and all Countries in the Postal Union..... 1.50

Subscriptions are payable in advance, and in default of written orders to the contrary, are continued at our option.

Advertising rates furnished on application.

Entered as second-class matter July 2, 1907, at the Postoffice at Chicago, Illinois, under Act of March 3, 1879.

The hard wall plaster manufacturers are noting considerable improvement in the demand.

Inquiries for machinery, equipment and supplies, coming in through our Information Bureau, indicate greater activity than ever.

Do you, gentle reader, make it a part of your business to advocate incombustible construction every day, on every occasion that presents? If not, why not?

Many cement manufacturers think that 1911 will be the banner year in the use of cement. All indications seem to point that way. The inquiries are greater in number and size than for some time past.

With the concentrating of the army at the Mexican border, the question naturally arises, whose war is this? It is a very expensive proceeding, and those who get the benefit should pay the price. Will they?

Improved methods in the burning and handling of lime have eliminated the cross roads lime burner almost entirely. The demand for a better and evener product makes it impossible for the small lime burner to do business except in the most remote localities.

The end of this month will see the opening of building operations in many parts of the country. From the reports at hand it would seem as if 1911 would be a banner year. Orders for material have come in earlier than usual and deliveries will be made at the jobs as soon as weather permits.

The builders' supply retailers are constantly adding new lines and find that these specialties are good paying propositions. In some of the large cities the retailers are handling practically everything needed in the construction of a modern building and are taking business away from the hardware dealer and the paint man.

The retailer of builders' supplies is appreciating more and more the necessity for displaying his products attractively, and many have show rooms which are artistic gems. It not only facilitates the selection of materials but enables the retailer to show his complete line without taking his customer all over his yard and storerooms.

The demand for washed, screened and graded sand and gravel is greater this year than ever. Concrete workers are realizing more and more the necessity for clean sand and have discovered that it is economy to buy this class of material, as it insures first class work. Many failures in the past have been directly attributable to poor sand.

The strikers always get busy about the time the snows begin to melt. This year is no exception and many of the larger cities are having troubles of this kind. These strikes have the effect of retarding building operations and always have the same result—loss to the workers, contractors and the general public. Will the Unions never wake up?

Hydrated lime continues to grow in popular favor. Many of the larger manufacturers find that the demand is greater than their present output and are increasing their capacity. Others are investigating the matter and making preparations to install hydration plants. Take a quiet tip—get into the business early—don't wait for your competitor to put it in first and then wish you had done so.

The concrete street and roadway is gaining many adherents every day. Like all new propositions it underwent the usual period of probation. The few remaining doubters are coming around slowly but surely. The day will come and it is not so far distant but that many of us will live to see it when fully one-half of the streets in this country will be constructed of concrete of one kind or another. The question of aggregate will be governed solely by the local conditions.

It is a noticeable fact that the leaders in every industry are the men who read their trade papers. Show us an office where the papers are piled in an unsightly heap without even the wrappers removed and we will show you a firm that is behind the procession nine times out of ten. There is none of us so smart but who can learn by the experience of others. It is the experiences and views of the leading men in the trade that makes up the bulk of the reading matter each month.

The sand and gravel men are coming into their own. The agitation of the question of grading and washing of sand for concrete use has resulted in a demand for high grade materials which is proving a source of great revenue to the producer. There is still room for profit if the producer can keep his cost of production down, and it behooves him to investigate the latest machinery and devices designed for this purpose, for it is only by the introduction of modern methods that he can hope to compete in the present day market.

The fire waste is a more important topic than the tariff, or any other question of present political discussion. Nobody knows the answer to the economies of politics, if there is such a thing. Our people are awake to the value of conservation. The need of it is getting stronger every day. There is no conservation comparable to the one item of applying the remedy to the fire waste. Concrete construction is the key to this situation and can be applied to every possible case without perceptibly increasing the cost. For ages we have known how to build safe walls, but floors, partitions, roofs and the interior structural members are quite as important as the outside shell. What has erroneously been called "slow burning mill construction" is a blot upon the intelligence of this age; when the number of human lives that have been sacrificed to this type of design is taken into consideration, it becomes a matter for criminal investigation, and so it will be looked upon in a very short time. At least it would be very easy to put up all new buildings from this time forward according to modern improvements and with modern elements of safety to human life and property.

# EDITORIAL CHAT

## SPECIAL FEATURES IN THIS ISSUE


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Even the humble editorman appreciates a word of approval and commendation from his readers. Every little while there comes to our sanctum sanctorum a line appended to a letter which is as sweet as the first zephyr of spring.

Recently our friends, D. Roberts & Co., the well known retail merchants of Manchester, England, favored us with the following words:

"We want to say how much we value your journal, ROCK PRODUCTS. Its articles are pithy and its reports are like having a chat with experts in all branches of the building trade. We look forward each month to its arrival."

---

John A. Miller, of Pittsburg, general contractor, whose operations in Texas, circulating around the city of Houston, have been very extensive, was met by a ROCK PRODUCTS man the other day. Mr. Miller remarked that the glorious climate of Houston was very attractive during these blizzardy months, and he was hurrying back to the scene of his operations at the first opportunity. He feels like a born and bred Texan by this time.

---

One of our recent callers was J. W. Cogley, Braddock, Pa. Mr. Cogley was formerly connected with the plastering business, but within the past month he has started in to do a jobbing business in builders' supplies. He is a young man of ability, and knowing the wants of the business will, no doubt, coöperate to the best interests of the manufacturer and dealer.

---

B. H. Rader, the eastern sales manager of the Universal Portland Cement Co., spent several days in Chicago last week. He reports considerable activity in the eastern cement market.

---

The manager of our eastern office is highly pleased over the receipt of two very beautiful statues in cement. The artist is Julius C. Kraus, decorative art worker in Portland cement, 155 West 32nd street, New York. One of these statues is a Niobe about 30" high, the other is a Vulcan 24" high. The coloring is done in metallic green and they show a wonderful improvement in cement art work.

---

Announcement has been made of the engagement of Roy Laisley Slocum, assistant superintendent of the Universal Portland Cement Company's plant at Universal, Pa., to Miss Elizabeth Gard, a prominent young society woman of Springfield, Ill. The wedding will take place in June.

---

Frederick Stanger, of Philadelphia, has joined the New York selling staff of the Vulcanite Portland Cement Company, in the Fifth Avenue Building, New York City. He will ultimately have the western Pennsylvania territory.

Clarence W. Rose, of Binghamton, N. Y., has taken a position as superintendent of the Concrete Pipe and Block Company, of Chicago, Ill.

---

L. L. Hutchison, who for many years was assistant director of the Oklahoma Geological Survey, has left the state employ to engage in business for himself as a consulting geologist. He is now located at Sapulpa, Okla. It is the intention of Mr. Hutchison to furnish information on limestone, clay, Portland cement, oil and all kinds of mineral deposits in the state of Oklahoma. Probably no one is better acquainted with the geological formations in Oklahoma than Mr. Hutchison. He has written many articles on the various subjects and is preparing others for publication. No doubt many concerns can use the services of a man who can give them such information as Mr. Hutchison posseses, and can use it to good advantage in connecting with locating sites.

---

C. W. Boynton, chief of the technical staff of the Universal Portland Cement Company, Chicago, is sojourning in California with his family. Los Angeles is the present center of his movements in that southern country of flowers. Mr. Boynton is a leading light in the development of the cement industry, having served for years as chairman of the division devoted to sidewalks, streets and roads, for the National Cement Users' Association. The standard specifications for concrete sidewalks was perfected under his guidance, and that is now recognized throughout the world. He has achieved many things for the concrete industry, and working on more that is yet to come. No doubt his absorption powers are at work upon the new ideas that the Pacific Coast presents to visitors.

C. W. BOYNTON, UNIVERSAL PORTLAND CEMENT CO., CHICAGO, ILL.

---

### BERT SWETT A POET?

Few of Bert Swett's most ardent admirers would ever suspect Bert of being a poet and probably he would deny the allegation if we hadn't caught him with the "goods." On St. Patrick's day there was a letting at Springfield as well as at Belleville and our friend Swett was unable to divide himself in two. He concluded to go to Belleville, as that was considered the hottest point. Belleville has a very large German population, while the Irish predominate at Springfield. While at Belleville he learned that his old friend "Dick" Egan received the contract. He therefore sent him the following telegram:

Honorable Richard Egan, care Henry Wheadon's Millionaire Club, Springfield, Ill.:
Hooray! Hooray! St. Patrick's Day, the Irish are always in the way,
Me for Belleville, I like it much; we have no Irish, only Dutch;
I want that order, six thousand bags; if I don't get it I will be in rags;
I am yours truly you can bet, your humble servant,
B. L. Swett.

It is hardly necessary to state that Bert got the order from Egan. Friends of Bert's are trying to excuse him on the ground that it is spring, but it doesn't go a little bit, because, as everyone knows, spring doesn't arrive until the 21st.

### GUESS WHO THEY ARE?

Our artist secured the snapshots shown on the opposite page during the recent convention of the National Builders' Supply Association at Chicago, last month. They are all prominent men in their respective spheres of action. It should be a comparatively easy matter for any delegate at the convention to be able to tell at a glance who the several men are in the various groups.

We will award a prize of $5.00 for the first correct answer received in our office, giving the names of the various men pictured. To the next five correct answers we will give a year's subscription to ROCK PRODUCTS. This subscription may be sent to any friend if the winner is already a subscriber.

---

### GENERAL CULVER DIES.

Springfield, Ill., March 21.—Gen. James Culver, 59 years old, one of the most prominent contractors and builders in Central Illinois, died Friday night, March 18, at his home in this city of erysipelas. A list of the buildings which he has constructed and those for which the Culver Construction Company now has contracts would include most of the leading structures of this part of the state.

His sickness dated from Tuesday morning, when he was stricken while driving into the city from his country residence near Washington Park, and his death takes him from several unfinished works of construction of great value. One of them is the new Leland hotel in this city, a $350,000.00 job, which stands practically complete on the exterior, but only partially finished on the inside. It is an eight-story building above the basement. Another of General Culver's unfinished works is the government building at Litchfield, and some extensive work on the prison walls at the Chester penitentiary. He had numerous contracts for construction of other buildings pending.

The decedent was born in Grunsey county, Ohio, in 1852. He went to work for himself at the age of fifteen years. Since then he had followed various lines, but years ago entered into the marble business, creating first a yard at Taylorville. He came to this city nearly thirty years ago, establishing a yard in North Fifth street. His present extensive yards at Ninth and Madison streets were established in 1889.

The late contractor's offices were established at 325 North Fifth street in 1887. Since that time he had established a well equipped library in connection with the office, with residential quarters in the rear. His permanent home was west of the city, near Washington Park.

General Culver's monuments in the way of imposing piles constructed are many. He was the builder of the celebrated state armory building at Second and Monroe streets, the city postoffice building at Sixth and Monroe streets, the Illinois National Bank building at Fifth and Washington streets, the new power plant opposite the state capitol building, the Gov. John R. Tanner mausoleum, the court house of DeWitt county at Clinton, Kumler M. E. church, and numerous residences of the city, including those of former Governor Richard Yates in Washington Park, and Col. Henry Davis in South Fifth street.

The decedent's survivors are his widow, Mrs. Catherine Culver, one son, Ross, of the United States army, in charge of the general hospital at San Francisco; two brothers, Will Culver, of Assumption, and J. H. Culver, of Decatur; and four sisters, Mrs. M. M. Hughes, of Burke, Idaho; Mrs. Nannie Portwood, Nelson, Neb.; Mrs. Ida McCreedy, Ridgeway, Colo., and Mrs. Edith Mossholder, Los Angeles, Cal.

General Culver's military career was attained in the late Spanish-American war. He served in the Fifth Regiment of Illinois Volunteers under Brigadier-General J. H. Barclay, of this city, entering the war as a colonel. He was retired with the rank of brigadier-general. While in the Spanish-American service he was in active command of the Fifth Illinois Regiment.

Due to the sudden illness of the decedent and his speedy death, few of his immediate relatives had time to reach his bedside before he died. Among those present when the end came were his brother, J. H. Culver, and Mrs. Culver, Former Governor Yates, General J. H. Barclay and Joseph T. Fernandez.

---

Percy Wilson, secretary of the Cement Manufacturers' Association, is in attendance at the meeting of the Maintenance of Way Convention being held in Chicago this week.

---

The annual meeting of stockholders of the Elk Cement & Lime Company, of Elk Rapids, Mich., was held recently and all the old officers re-elected. Homer Sly, of Petoskey, is president.

SNAP SHOTS OF SOME OF THE DELEGATES TO THE NATIONAL BUILDERS' SUPPLY ASSOCIATION. GUESS WHO THEY ARE?

## NEW YORK

### To Hold First Building Material Exhibition at Madison Square Garden Next May.

The first "building material" exhibition ever held in New York will take place at Madison Square Garden for a week during the month of May next. It will be officially known as "The National Building Material Exhibition," and will aim to cover the entire field of public and private building construction down to the minutest detail. Plans for the exhibition have been carefully laid and the support and patronage of all of the most prominent architects, manufacturers of building materials and the various mechanics and building trades associations have been enlisted, and it is the general opinion that this exhibition will greatly stimulate the interest not only of those directly associated with building construction but also that of the general public. Among those who have placed the seal of approval upon the venture are McKim, Mead & White, Hardes & Short, Jas. E. Ware & Sons, James Leo, Pollard & Steinan, architects, and Jas. A. Farley, Wm. Crawford, Dawson & Archer, Fountain & Choate, and Geo. A. Fuller Construction Co., builders.

While the coming show is to be a "National" "international" importance, as it is the direct out- "international" importance, as it is the direct outgrowth of the Building Show which has been held annually in the Olympia Exhibition Building, in London, for the past ten years, and there will be shown at Madison Square Garden a great variety of imported appliances and accessories. As the London show has met with the greatest success both from the standpoint of the producer and the general public, the field in this country is so much more extensive owing to the rapid advancement in recent years in building construction that the initial exhibition here promises to far surpass the one of older date. The scope of the coming show will cover such a large field that the architect, the general builder, the man who specializes in interior and exterior appurtenances and the householder will find upon entering the Garden everything appertaining to the construction and fitting out of any kind or description of building.

One of the big features of the show, and something that will probably create a sensation, will be the daily building and completion of an entire house. This is something that has not only never been attempted before but which has only been made possible by the wonderful advancement in construction work during the past few years. While this is in progress, an expert upon the fitting out with modern appliances of public and private buildings will lecture and give a practical demonstration of the many wonderful and useful recent inventions and improvements.

It has been suggested that an exhibition by the prominent architects of this country of the pictures of our most famous public and private buildings will constitute a wonderful art show in itself, and the Concert Hall in the Garden has been reserved for this purpose while the show is in progress. Another attraction of the exhibition will be a display of modern country and suburban residences, showing all of the best features of architecture and the innumerable conveniences by which recent inventions have placed the life of the twentieth century suburbanite upon a par with the householder who lives in his own house in the city or in an up-to-date metropolitan apartment.

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A. F. Coats, president of the Washington Portland Cement Company, Seattle, Wash., is spending two or three days in Chicago. He expects to increase the capacity of his plant from 800 to 2,200 barrels a day, and have the mill running by May 15. He is putting in two 8x125 kilns and finishing machinery of the Allis-Chalmers tube mill type.

In speaking of Coast condition in the cement trade, Mr. Coats stated there were 7,000,000 barrels made on the Pacific slope last year and no surplus stock, and the increasing production will be taken care of by the increased demand. He looks forward to a good business year on the Coast. Mr. Coats has been west for twenty-four years, and was formerly connected with the lumber trade for many years, and has the same enthusiasm in the cement lime which he had in the lumber game.

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The H. M. Purdy Company, of Bridgeport, Conn., dealers in lime and cement, have filed a petition in bankruptcy in the United States court. The liabilities are listed at $13,650.93 and the assets at $1,990.00.

### DEATH OF FREDERICK WILLIAM MAIN.

It is with the utmost regret that we record the death of William Frederick Main, which took place at his home, 2921 Washington boulevard, Chicago, recently.

At the time of his death Mr. Main was identified with the Chicago Portland Cement Company and a finer gentleman or more able salesman could not be found. He was 56 years old and prior to his entry into the cement business was for a quarter of a century treasurer of the Payson Manufacturing Company, Chicago.

Mr. Main was a man who made friends at sight, and throughout the country, especially through the middle West, was the most widely known cement man in the industry. He was in personal contact with every architect, engineer or contractor of any importance, during the time he was connected with the cement business, and is remembered by all with respect and admiration.

He was an active member of the Chicago Athletic Club, as well as several other clubs in the city, and for years was chairman of the house committee of the Illinois Athletic Club. He was also a member of the National Association of Cement Users and of other organizations.

Popularly known as Fred, Mr. Main will be remembered by everyone as a competent and polished business man and the editor of this paper joins with others in offering sympathy for the bereaved family.

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We were favored with a call from Charles McCormick, of the McCormick Waterproof Portland Cement Company, St. Louis, Mo. Mr. McCormick is enthusiastic over the outlook for his waterproofing and has several large contracts on hand

THE LATE WILLIAB F. MAIN, OF CHICAGO.

at the present time which will keep him busy for some time to come. He says that conditions generally are much improved and that the present indications are that 1911 will be a banner year for building operations.

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H. MacRobert, who was formerly with the Universal Portland Cement Company, is now occupying a position as salesman of the Atlas Portland Cement Company. He will work the territory surrounding Chicago.

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A directory of Portland cement manufacturers, together with manufacturers of gypsum and lime, has been issued by the Cement Era. This book is a pocket edition and contains much useful information on the above subjects. The book retails for $1.00.

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Dean Rucker, who has been in charge of the Detroit offices of the Church Quarry Company at Detroit, Mich., left the employ of that concern on February 1.

J. H. Fry, who at present is at Toledo, will succeed Mr. Rucker.

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The Orange Construction Company, Orange, N. J., has been incorporated with a capital stock of $5,000 by John Harms, Orange, N. J.; Joseph Klein, New York City; Louis E. Rosenthal, Newark, N. J., and Carolina Harms, Orange, N. J.

# FOREIGN TRADE.

### The Following Trade Reports From the Bureau of Manufacturers, Department of Commerce and Labor, Regarding Concrete and Concrete Machinery Are Interesting.

## SOUTH AFRICA.

From Consul Edwin N. Gunsaulus, Johannesburg: Builders and contractors in Johannesburg must have concrete mixers if they expect to tender for foundation work, and as a result many of the local contractors have mixers for use in construction work. One firm is said to have sold 25 American machines in this city. This firm aims to keep a few machines in stock, as well as a complete stock of parts. There is only one firm which makes a specialty of handling concrete mixers in this district (Transvaal), and it claims to have sold 90 per cent of all the machines used here. Practically all are of American manufacture, there being no others apparently now in the market, though for a time there was sale of a machine built in England under royalty to a manufacturing company in the United States. The selling price of the mixers mostly in use here averages about $675.

There is just now and likely to be for the next few years unusual activity in the building line not only in this city, but throughout this consular district, and it would seem that a good business should be done in the sale of concrete mixing machinery. I am informed that a number of mixers, all of American manufacture, are now in use in the construction of the Union Government buildings at Pretoria and in the erection of public and private buildings in Johannesburg.

The customs duty on concrete mixers coming into South Africa is 3 per cent, while those of British manufacture are entered free of duty. [A list of the leading contractors and importers of machinery in the Transvaal, transmitted by Consul Gunsaulus, is on file in the Bureau of Manufactures.]

## GERMANY.

From Consul George Nicolas Ifft, Nuremberg: Bavaria has an abundance of first-class building stone and reasonably cheap transportation, which make the use of concrete and cement for building purposes relatively small. Considerable concrete is, however, used in bridge building and road and street work, and its use in other structural work is growing steadily. Nuremberg is finishing one of the finest railroad stations in Europe, in which the tunnel approaches to the track platform—and there are several miles of them—and the platform sheds, of which there are also miles, are entirely constructed of concrete reinforced with iron. In the same connection the railway tracks within the city have been elevated and a number of elaborate tunnels constructed. These tunnels are 400 to 600 feet long and provide for double tracks for the street railway lines and for wagon and foot traffic. They are mostly constructed of concrete and iron. The Ludwigs Canal, which passes through the city, is in several places conducted across these tunnels in great concrete viaducts. Concrete is also finding favor as a suitable material for fountains, gateways, etc.

### Concrete Buildings and Concrete Mixers.

There is in Nuremberg only one considerable concrete building. This is a large concert and amusement hall and is one of the handsomest structures in the city. The exterior is of artificial stone, manufactured in this district, and closely resembles ordinary building stone. There are several concrete plants in this district, but they are mostly small concerns.

I have noted concrete mixers, apparently of the ordinary type of machine used in the United States, and there are a number of German concerns which manufacture them, but the concrete mixed by hand and on construction work is so expensive as to seem to make more modern methods almost imperative. This is, however, not unusual in Germany, where most primitive methods are seen in operation side by side with the very latest mechanical devices.

### How American Trade Can Be Introduced.

American manufacturers of cement and concrete machinery, who desire to introduce their products here, should make an effort to interest the concern and individuals whose addresses are transmitted [on file in the Bureau of Manufactures], by direct correspondence. Such correspondence, as well as circulars, advertising matter, catalogues,

etc., so far as practical, should be in the German language. The effort should be made to deal with these parties direct rather than through some agent, who is perhaps interested in several other lines of machinery, or even in other machinery of the same kind.

A visit from a personal representative who thoroughly understands the machinery he is selling is always more effective than a campaign by letter and circular. This is not always practicable, however, but my judgment would be that the American manufacturer who has an article that can be sold in Europe, and who regards the European market as a field to be cultivated rather than as only an incident of his business, can well afford to keep a representative in this field who will visit the trade regularly and keep himself in touch with local needs and demands.

**Popularity of Iron Concrete.**

From Consul George Eager, Barmen: Notwithstanding the efforts of a west German cement syndicate, composed of more than 30 cement manufactories, the price of cement has gradually diminished, until it is at least 50 per cent lower than a decade ago. The reason given for this decline in price is the strong competition of Belgian manufacturers, who are greatly assisted by the cheap water rates for freight into Germany.

The so-called iron concrete is fast becoming the favorite material for modern buildings. Everywhere one sees new structures of all kinds and for all purposes almost entirely constructed of iron concrete.

Each cement factory has its own laboratory, where its products are constantly tested, and it is safe to say that, in most cases, the cements are much better than the quality demanded. Of course the guaranty of quality and strength of this material is of great value to the contractor as the manufacturer of the cement he purchases is responsible for its quality.

For the use of those who are interested in the most modern and up-to-date uses of cement and iron concrete, in the construction of buildings, churches, bridges, foundations, etc., four folios of photographic reproductions of diverse building undertakings in different processes of construction and in most cases with plans of construction attached, are transmitted. [On file in the Bureau of Manufactures.]

## ITALY.

From Vice-Consul Stuart J. Fuller, Naples: Extensive improvements and additions to the present port works of Naples are under discussion in the national legislature in Rome, and it is generally expected that the necessary appropriations will be made. A detailed report will be forwarded as soon as definite arrangements are settled on. In the meantime it is thought possible that American manufacturers of cement may be interested, despite the fact that cement manufacture in northern Italy has developed to so great an extent as to fairly supply the Italian market with all but quick-hardening cements.

The imports of cement into Italy in 1909 were as follows: Quick-hardening, 13,750 metric tons, valued at $116,870; other kinds, 7,926 metric tons, valued at $67,371. From 15 to 20 per cent of both kinds were entered at Naples.

**Cement Duty and Prices.**

The greater part of the cement imported comes from France, but the import duty on cement from the United States is the same as that on the same commodity from France. Quick-hardening cement and hydraulic limes pay 10 cents and other cements 25 cents per 220 pounds.

Ordinary slow-hardening cement is sold here in 110-pound jute sacks at 77 cents per 220 pounds, with an extra charge of 10 cents for each sack. French quick-hardening cement is packed in barrels of 220 and 660 pounds, and is sold in Naples at $1 per 220-pound barrel, and in the larger barrels at 92 cents per 220 pounds.

The Italian cements are produced in the neighborhood of Turin and Milan. Both quick-hardening and ordinary cements are produced.

**Possible Opportunity for American Cement and Machinery.**

It is too early to give any estimate as to the quantities that will be required for the new port works or to secure specifications as to qualities and prescribed tests. Should the proposition be of interest to American cement manufacturers or manufacturers of concrete machinery, the best way to get into the market would be to send a man to Naples to keep in touch with the contractors bidding on the work and secure the opportunity of having their goods considered. Little, if anything, could be done by correspondence in the face of the personal representation of Continental producers.

[A list of the principal engineering contractors is on file in the Bureau of Manufactures.]

## SPAIN.

From Consul Charles L. Hoover, Madrid: The use of cement in the Madrid district has been limited heretofore to the construction of sidewalks, floors, vaults, walls, etc., and its employment in the manufacture of cement blocks or reinforced concrete construction has been almost unknown. The failure to employ this material, which has met with such favor in other places, it attributed to the high price of the product, the comparative cheapness of stone and brick, the opposition of the masons' guilds to its use, and to the fact that the mortgage banks are prohibited by their statutes from making loans upon buildings of this kind. Until very recently cement has sold for 72 pesetas ($12.96) per ton in Madrid, but this price has now been reduced to $10.80 per ton.

**An English Factory and Its Efforts to Increase the Use of Cement.**

There are four important factories now engaged in the manufacture of this article in Spain, and an English concern has just completed a mill which will produce 40,000 tons per year with the present installation. It is planned, however, to increase the annual output of the plant to 80,000 tons as soon as the company completes its marketing arrangements. This plant is equipped with the most modern machinery, the vitrifying furnaces being of the coal-dust blast type, which was developed in the United States. This company expects to sell its product at $9 per ton, and it is the intention to begin an aggressive campaign to remove the obstacles in the way of its use. This will be no small matter, as the labor guilds, called "gremios," strenuously oppose anything in the way of innovation. This attitude was shown when an effort was made some years ago to increase the thickness of bricks. The bricks used here are only about half as thick as those used in the United States, and when it was proposed to make them thicker the gremios all refused to use the new shape, and the brick manufacturers were forced to resume the use of the old-style molds.

Concrete blocks are set in cement instead of lime mortar, and it has been the experience elsewhere that the bricklayers, or blocklayers, rather, drop as much cement into the cavities of the blocks as they place between them, thus increasing the cost of this style of construction to such an extent as to render it unprofitable.

**Outlook for American Machinery.**

These difficulties will have to be met and overcome before there will be any great demand for cement and concrete machinery, but the work of education, which this important company is undertaking, opens up the prospect of a market for American machinery which it would be well for our manufacturers to watch.

The English company is also endeavoring to get the mortgage banks to revise their statutes so as to permit them to make loans upon buildings made of concrete blocks. These statutes were made, of course, before concrete blocks were known, and the probabilities are that this change will be made at an early date.

**Imports, Duty, Coal Cost and Crusher Power.**

The imports of cement into Spain in 1909 amounted to 52,174 metric tons, valued at $604,170, of which France furnished about two-thirds and England and Belgium nearly all the remainder. The imports seem to be falling off. The duty is 5 pesetas (96½ cents) per metric ton.

The price of cement must necessarily remain higher here than in the United States on account of the cost of coal. The new company mentioned pays 38 pesetas ($6.84) per ton for slack laid down at the plant.

The crushers, etc., are moved by electricity, 1,000 horsepower being generated by water power, the water having been brought to the mill through a 12-mile canal.

From Consul-General Henry H. Morgan, Barcelona: The use of concrete in Barcelona is very limited, as neither buildings nor streets are constructed thereof, but it is used in parts of the harbor for the construction of walls. There are a few concrete mixers in the city, three of which are owned by the harbor works contractors, which have been imported from the United States, Germany and England. It is said that a Barcelona company has contracted for the construction of harbor works at San Feliu de Guixols and Palamos, with which business might result if catalogues in Spanish were sent to its address. [This address and addresses of other persons interested in concrete machinery are on file in the Bureau of Manufactures.]

## SCOTLAND.

From Consul W. Stanley Hollis, Dundee: There are no cement manufacturing establishments in this district, nor anywhere in Scotland north of the Forth, and the greater part of the cement used is manufactured in England. There is not much building, either public or private, going on in which cement is used, and the imports into Dundee do not exceed 9,000 tons per year.

Machinery is rarely used in mixing concrete, it being generally mixed with shovels, but this is largely due to the fact that the sale of concrete mixers has never been pushed here. Mixers could probably be sold in each city in this district which has its streets paved with either granite or with wood blocks, as under such pavements a substantial concrete bed is generally first laid.

It is expected that in the near future some very large works may be undertaken by the Dundee municipality in the extension of its waterworks system, and the Dundee Harbor Board has the construction of a large sea wall in view.

If it is finally decided to carry out these works, large quantities of concrete will be used on them, and there should be opportunities for the introduction of concrete mixers. It is also understood that considerable concrete will be used during the coming year at Stone Haven and Aberdeen, upon works connected with their respective harbors. [The addresses of persons interested in concrete mixers in the Dundee district are on file in the Bureau of Manufactures.]

## SECOND BUILDING SHOW.

**Promises to Eclipse Last Year's Show in All Details—Record Attendance Expected—Of Interest to Retailers.**

The second annual Building and Realty Show will be held at the Coliseum, in St. Louis, May 8 to 12, under the auspices of the Interstate Realty Building and Ideal Home Show Association.

Although this is only the second show of its kind to be given by this association it promises to eclipse all expectations in interest, attendance and far-reaching results for the benefit of builders, and those in any way connected with building. The officials of the association have worked throughout the time which has elapsed since October, 1910, when the first show was held, to make this second one an unprecedented success.

To all exhibitors the first show gave such flattering returns that there will be hardly one of last year's exhibitors not present at St. Louis in May. This is the place where manufacturers and dealers, whether jobbers or wholesalers, can reach the people.

Not alone to exhibitors is this show of coming interest. From all over the country visitors will flock to St. Louis to see the displays. The attendance last year more than fulfilled expectations, but this year the managers want, and expect, to double their first attendance.

Over 22,000 persons attended the building show in October, 1910, and this year the project has even now assumed such vast proportions that all transportation lines running into St. Louis are planning greatly reduced rates, and besides the reduced rates for the whole country, popular excursions from a radius of 200 miles will be a feature.

Patrons at these shows are high-class, that is, they are home seekers, in that they want a modern, comfortable home and not knowing many appliances which go to make that kind of a home, when they see them at the show they are duly impressed; furthermore, they are a buying people, and it behooves a dealer to get their attention through an attractive exhibit at the show. Out of one hundred exhibitors last year, there was not one who went away dissatisfied.

The exhibit sections will cover fully every manner of building materials and appliances. They are: Lumber and mill work, general building materials, building appliances, cement and concrete in all forms, concrete machinery and appliances, landscape and floral, city realty, suburban property, farm lands, railroad development property, the ideal home and its entire construction and equipment.

Now is the time to get your exhibition space and secure information giving further details of the show. The office of the Interstate Realty Building and Ideal Home Show Association is suite 737-752 Century Building, St. Louis, and inquiries addressed there will bring the desired information.

# FOR THE RETAILER

## The National Builders' Supply Association

Meets Annually.

OFFICERS

Charles Warner, Wilmington, Del. ..... President
Henry W. Classen, Baltimore ..... Treasurer
James W. Wardrop, Pittsburg ..... Secretary

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California ..... C. J. Waterhouse, San Francisco
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Delaware ..... Charles C. Bye, Wilmington
District of Columbia ..... S. D. Lincoln, Washington
Georgia ..... P. G. Hanahan, Atlanta
Indiana ..... Edward Lodgson, Indianapolis
Illinois ..... H. H. Halliday, Cairo
Idaho ..... Francis C. Sanders, Boise
Iowa ..... R. Hay, Dubuque
Kentucky ..... Owen Tyler, Louisville
Louisiana ..... John J. Voelkel, New Orleans
Maryland ..... J. J. Kelly, Baltimore
Massachusetts ..... James G. Lincoln, Boston
Michigan ..... C. N. Ray, Detroit
Missouri ..... Howard McCutcheon, Kansas City
Minnesota ..... John Wharry, St. Paul
New Jersey ..... J. M. Campbell, Passaic
New York ..... Henry Schafer, Jr., Buffalo
Ohio ..... J. P. Carlile, Columbus
Pennsylvania ..... John Strouss, Pittsburg
Rhode Island ..... C. M. Kelly, Providence
South Carolina ..... A. G. Grower, Greenville
Tennessee ..... W. W. Fischer, Memphis
Texas ..... W. L. Mactee, Houston
West Virginia ..... F. P. Jones, Wheeling
Wisconsin ..... R. C. Brown, Oshkosh
Washington ..... S. W. R. Dailey, Seattle

EXECUTIVE COMMITTEE

Charles Warner, Chairman; Frank S. Wright, Chicago, Ill. Henry A. Moore, Philadelphia, Pa.; Ambrose Tomkins, Newark, N. J.; Edw S. Walton, Youngstown, Ohio; Gordon Willis, St. Louis, Mo.; A. E. Bradshaw, Indianapolis, Ind.; Walter F. Jahncke, New Orleans, La.; V. H. Kriegshaber, Atlanta, Ga.

Official Organ, ROCK PRODUCTS

### FIVE THOUSAND MILES OF STEEL RAIL.

When the pioneers had the California gold fever every community had its gold seeker and the prairie schooner was picturesque and useful, and when the Union Pacific land grant passed Congress everybody was talking about it, especially as it insured railway transportation to the coast.

The recent announcement made by the "Poo Bahs" on Wall street that the Union Pacific and the Southern Pacific would be double-tracked to the coast did not make near as much stir as the prairie schooner's trip from Lawrence, Kan., to Denver, considering the change in time.

But, for the benefit of the building material world, that 5,000 miles of track should stir up the cement man, the plaster man, the retailer of building material, the architect, the contractor, the real estate boomer, and the town crier, for the construction of that much railroad means the employment of many men and the purchase of millions of dollars worth of material. It should give the building material trade a great impetus, when this operation is started in earnest.

We have been "laying on the shelf," as it were, because of the Insurgents, the Democrats, the Republicans and the politicians generally. The Interstate Commerce Commission also had a whack at things and they held up the railroads and incidentally everybody that depends on doing business with the railroads, and that meant the big industrial companies who furnish rails and frogs, and every old thing that goes into a railroad, but now the worry is over, as far the the Republicans are concerned anyhow, and we are in a position to do business if we will only think so.

Money is plentiful; materials are low enough so that people should build. In fact, they could make fifteen to thirty per cent by the difference in the price of materials compared with three years ago, and it is about up to the building material world to stir up more business by showing the other fellow the economy in the construction of a house or a barn during 1911.

### CANADIAN PRODUCTION OF BUILDING MATERIALS IN 1910.

The total production of clay and structural products of Canada in 1910, according to an estimate made by the Canada Department of Mines, was valued at $105,040,958. This amount included 4,753,975 barrels of Portland cement valued at $6,414,315; brick, valued at $1,669,370; lime, 5,721,285 bushels, valued at $1,131,407; sand and gravel, exported 624,824 tons, valued at $407,974; sand lime brick, valued at $18,492, and slate to the value of $18,492. The production of gypsum during 1910 totaled 513,313 tons, valued at $939,838.

### BUILDERS AND TRADERS ORGANIZE.

The Builders' & Traders' Exchange, of Birmingham, Ala., was recently organized, with one hundred charter members. Officers for 1911 were elected as follows: John W. Sibley, president; Frank H. Conner, first vice-president; Allen J. Krebs, second vice-president; J. H. Eddy, treasurer; G. T. Stafford, secretary.

Suitable quarters were secured in the Chamber of Commerce Building, rooms 601-612. An estimating room and all modern conveniences have been installed, offering the best facilities for figuring and estimating. Architects and supervisors of public or other work are invited to send their plans and specifications to the exchange for bids. The exchange will pay express charges both ways on such plans and specifications.

### MASTER BUILDERS' ASSOCIATION.

Rock Island, Ill., March 21.—Contractors of Rock Island, Moline and Davenport have formed the Tri-City Master Builders' Association, for mutual improvement. The officers are: President, J. F. Nebergall, Davenport; vice-president, R. Hudson, Rock Island; second vice-president, Axel Carlson, Moline; third vice-president, J. L. Conway, Moline; secretary, H. S. Paulsen, Rock Island; executive board, Victor Palmgren and Victor Lorenz, Moline; H. W. Horst, H. Tappendorf, A. R. Nould and M. A. Powers.

### BUILDERS MEET.

Philadelphia, March 16.—During the week ending March 18 Philadelphia was the scene of conventions held here by both the Pennsylvania State Association of Builders and the National Association of Builders' Exchanges. These bodies were the guests of the Master Builders' Exchange of Philadelphia, which association, however, is not a member of either organization.

The front, the meeting rooms and exhibition hall of the Builders' Exchange, 18 to 24 South Seventh street, was elaborately decorated in honor with flags and bunting.

The Pennsylvania State Association of Builders held its annual session on March 13. The principal features brought out at this meeting was an advanced ground against the "aggression" of labor unions, the favoring of a consolidation of all builders' organizations in the state for mutual benefit and protection, and the advocacy of the open shop principle. Hostility to labor organizations was disclaimed; approval of arbitration of differences with workmen and conference with workmen to prevent strikes and lockouts asserted. The following officers were elected for 1911:

President—Edwin S. Williams, Scranton, Pa.
First vice-president—B. Griffin, Pittston.
Second vice-president—G. C. Servey, Oil City.
Secretary—A. I. Fowler, Scranton.
Treasurer—J. Heffner, Pottsville.
Executive committee—B. Griffin and George S. Boyle.

Delegates present were:

Sharon, Pa.—A. E. Wales, C. A. Wishart, J. H. Shaw and A. W. Bell.

Scranton, Pa.—E. S. Williams, W. J. Barriscale, A. I. Fowler, H. A. Parsons, H. R. Sykes and W. A. Harvey.

Pittston, Pa.—T. H. Snell, B. Griffin, W. W. Allen and John Booth.

Pottsville, Pa.—P. J. Heffner, J. Zimmerman and T. Lawless.

Oil City, Pa.—G. C. Servey.

Bradford—W. H. Dennis, J. P. Melvin, C. C. Stratton, E. N. Unruh and C. M. Luttrell.

Franklin, Pa.—G. H. May, Henry W. Long and H. B. Corrin.

Wilkes-Barre—W. H. Shepherd and George S. Boyle.

The Philadelphia Exchange was represented by its executive officers.

On March 14 the National Association of Builders' Exchanges went into session at the Builders' Exchange building, President Edwin S. Williams, Scranton, Pa., in the chair. The meeting of this body covered two days and a part of the session was of a strictly private nature, in order to allow the members perfect freedom in expressing their views, etc., concerning labor questions and other important subjects that might be brought up. Resolutions confirming the principles adopted at the National convention a year ago on the relations of employers to labor unions were passed with little discussion. The platform disclaims hostility to the unions and favors arbitration of disputed questions and conferences between union heads and employers to prevent strikes and other troubles. The platform also strongly denounces the boycott.

The officers elected for 1911 are:

Franklin M. Harris, Jr., Philadelphia, Pa., president.

G. T. Stafford, Birmingham, Ala., first vice-president.

W. B. Lensing, Indiana, second vice-president.

Alexander E. Pearson, New Jersey, secretary.

John Atkinson, Philadelphia, treasurer.

Edwin S. Williams, Scranton, Pa., and John N. Longest, North Carolina, members at large of the executive committee.

One of the principal objects in bringing this year's convention to Philadelphia was in the way of missionary work. The Master Builders' Exchange of Philadelphia, which entertained so royally the visitors at luncheons, theater parties, etc., and opened its rooms so freely for the use of the visiting bodies, has always stood in the front rank as an independent and free thinking organization. It was thought in the personal contact of the members of this exchange with those of the state and national bodies was a possibility of bringing the Philadelphians into the larger fold. This piece of strategy, it is confidently believed, will prove effectual, as it is understood among the members that in all probability at the next meeting of the board of directors of the local association a vote will be cast favoring affiliation with the national association. It is said on the strength of this belief Philadelphia was honored by the election of its popular member, Franklin M. Harris, Jr., to the presidency of the National association.

Delegates present:

Edwin S. Williams, Scranton, Pa., retiring president.

I. N. Chambers, Memphis Tenn., retiring first vice-president.

J. M. Phillips, Marshallton, Del., retiring second vice-president.

Alexander E. Pearson, West Orange, N. J., secretary.

Joseph F. Eilbacher, Elizabeth, N. J., retiring treasurer.

J. N. Longest, Greensboro, N. C.; David S. Plummer, New York City; C. J. Wagner, Memphis, Tenn.; E. N. Unruh, Bradford, Pa.; Hugh D. King, Bloomfield, N. J.; David Warrington, Jacksonville, Fla.; O. W. Speer, Wilmington, Del.; C. A. Bloomfield, Metuchen, N. J., and E. O. Hamilton, Omaha, Neb.

### INTERSTATE MATERIAL CO.

Davenport, Ia., March 21.—The Interstate Material Company, of Davenport, Iowa, has been incorporated in Illinois with a capital stock of $2,500.00 to deal in sand and gravel in addition to cement and lime and other building materials. The principal offices in this state will be at Moline, where a representative will be stationed. The Iowa concern, which is capitalized at $25,000.00, in Iowa, has headquarters in Davenport and a plant on City Island, just off the Davenport river front. James A. Moran, formerly of Rock Island, is manager. A number of the incorporators of the Interstate Material Company are incorporators of the McCarthy Improvement Company, a big Davenport paving concern, but it is announced by officers of the improvement concern that the two companies are separate.

### TO REORGANIZE CEMENT AND LIME PLANT.

The Elk Cement & Lime Company, of Elk Rapids, Mich., which is in the hands of a receiver, will be reorganized. The plant has been employing 100 men and manufacturing 1,200 barrels of cement a day. Robert Williams and C. A. Whyland, of Chicago, are making an effort to reconstruct the company.

### CHARLES WARNER COMPANY TO REBUILD.

The Charles Warner Company contemplates tearing down the large mortar plant at their works at Wilmington, Del., shortly after the first of March, and the erection of a new building in its place. The new plant will allow the company to make white plaster and dry mortar. The making of all wet mortar will be abolished, with the exception of one kind.

F. W. McKee, of the Second National Bank Bldg., Pittsburg, Pa., who are dealers in limestone, white sand, sewer pipe, and other building materials, have just completed an addition to their sand plant. They are now producing 5,000 tons of white sand per month. This white sand is extremely useful in many ways, and they are developing a large market for the same and shipping it over a wide territory.

The General Construction Company has been incorporated at Philadelphia, Pa., with a capital stock of $100,000.00. The incorporators were O. E. Salomon, D. E. Rattin and J. Lord, all of Philadelphia.

### NEW YORK RETAILERS.

New York, March 15.—The building material dealers reported business slow during February, but during the past two weeks conditions have improved somewhat and the outlook seems very bright. Probably at no time in the history of the trade has there been so many important jobs in contemplation or already in progress.

The cost of this work will run into millions of dollars, the Woolworth building alone costing $12,000,000.00. Architects and contractors, however, are in no apparent haste in placing contracts and a large majority of this work is yet to be let. As a result of the work that is positively to come the trade feels that the year 1911 will be a good one.

Among the buildings to be provided are the Woolworth Building at Park place, Broadway and Barclay street, to be 51 stories high; the new postoffice, Thirty-third street and Eighth avenue; the Telephone Building, 16 stories in height, at Walker and Lispenard streets, costing about $2,000,000.00; the Masonic Temple, at Twenty-third street and Sixth avenue, 19 stories, to cost more than $1,000,000.00; the Gringold's $1,000,000.00 apartment house; the Seaman's Home, at South street and Coenties Slip, costing $750,000.00, will be 12 stories in height, and many smaller structures amounting in all to about $35,000,000.00, according to the latest estimates.

E. B. Morse, of the Frank B. Morse Company, said: "The demand for lime has been fair during the last month and we look for better business as soon as the spring activity in building circles begins. Every indication points to a large increase in the demand for lime, as there has been a vast improvement in building operations during the past fortnight."

John McNamara, a large dealer in brick in New York, stated: "There is nothing to report in regard to the brick situation. Business continues to be slow, although we hope it will improve as the season advances. Hudson river brick is selling at $5 to $5.50 per M in the usual large lots."

U. F. Washburn, treasurer of the Washburn Brothers Company, of Jersey City, N. J., remarked: "Business in this brick trade is slow and the condition is said to be caused by overproduction of bricks during the past year. There are some 400,000,000 brick under sheds up the Hudson river and this amount is sufficient to supply the demand of the building trade in New York until about the middle of next summer. The money market is tight and building operators are finding difficulty in negotiating loans. Brick is as low as $5.00 and $5.50 in large lots."

James B. Brady, dealer in building materials at 104th street and East River, New York, was discharged from bankruptcy by Judge Hough. His liabilities were $25,128.00.

The Board of Estimate has appropriated $3,000,000.00 to repave the streets of New York, as follows: Boroughs of Manhattan and Brooklyn, $1,000,000.00 each; Bronx and Queens, $350,000.00 each, and the borough of Richmond, $300,000.00.

The following interesting figures regarding some of the building material to be used in the erection of the $8,000,000 Municipal Building were given out by the contractors, the Thompson-Starrett Company: The John P. Kane Company will supply the Nazareth Portland cement for the mason work and the Alpha Portland cement for the fireproofing, amounting to about 45,000 barrels. About 12,000,000 base brick will be used and 6,000 barrels of Lehigh Portland cement was used in the foundations. The architects are McKim, Mead and White.

The Chestnut Ridge White Brick Company of Manhattan has been incorporated with a capital of $1,000,000.00, to manufacture and deal in brick, stone, terra cotta, tile, etc. The incorporators are: J. G. Beemer, A. Petit, H. B. Calver, all of New York City.

The Jamestown Holding Company has been incorporated at Jamestown, N. Y., to deal in real estate and building. Capital stock is $300,000.00. The incorporators are C. E. Bailey, H. W. Preston, W. C. Price, all of Jamestown, N. Y.

The George W. Jackson Contracting Company, of Yonkers, has been incorporated, with capital stock of $300,000.00. The incorporators are G. W. Jackson, of Chicago; W. W. Hoppin, of New York, and F. L. Madden, Ossining, N. Y.

The Empire Architect Bronze Company, of Brooklyn, has been incorporated to deal in plaster, metals, bronzes and alloys. Capital stock is $75,000.00. Incorporators: M. Newman, L. Newman, L. Lebowitz, all of Brooklyn, N. Y.

The Marion Construction Company, of Camden, N. J., has been incorporated with a capital stock of $25,000.00. The incorporators are F. R. Hansell, N. F. Eidele, I. C. Clow, all of Camden.

The T. J. Ferber Construction Company, of New Barbadoes, N. J., has been incorporated with a capital stock of $125,000.00. The incorporators are M. Ferber and F. V. Ferber, of Hackensack, and V. A. Hart, of Emerson, N. J.

The Ginder Construction, of Trenton, N. J., has been incorporated with a capital stock of $100,000.00. The business of the company will be that of general paving, engineering, construction and architectural business. The incorporators are J. Ginder, C. Ginder, E. Ginder, all of Trenton.

The Standard Cement Products Company, of Alloway, N. J., has been incorporated with a capital stock of $25,000.00 to manufacture products from cement. The incorporators are C. Peters, C. V. B. Getty, R. Goldschmidt, all of Alloway.

### CHICAGO RETAILERS.

Chicago, March 20.—Retail dealers here during the past 30 days have felt the first symptoms of spring, in their estimation; that is, business is picking up. "We don't bank much on the robins," said one dealer, "orders are the things which bring the glad tidings to us."

This increase in orders they have experienced is the first sign that spring building operations have started in earnest. Chicago has been going through a series of strikes of the Associated Building Trades, and these strikes have to some degree held back building operations. Architects have been afraid to give their plans to contractors because they were not sure of having the construction work run along smoothly. The latest report on the strike says that building trades unions have been given authority to break contracts with employers at will. This decision was made recently by the executive council of the Building Trades department of the American Federation of Labor, but the latter organization is expected to repudiate the action.

#### Many Proposed Buildings.

Notwithstanding the harmful effects of these strikes on building, Chicago is about to enter, in fact, has already entered upon one of the biggest periods in building it has ever experienced. At the present time there are nine skyscrapers, each one over 200 feet high, either under construction or fully planned. Besides these larger buildings, there are numberless smaller constructions being planned, enough, in fact, to give every retailer a record-breaking year in selling his products.

Cement workers are now beginning to ply their trade and are using pretty fair quantities of cement for this time of the year. The demand for lime and torpedo sand and gravel is also fairly brisk and the trade is increasing right along.

For the opening of the year prices are firm, showing a slight upward tendency. Money, at present, is rather close, but dealers believe this condition will soon be bettered.

#### Retailers Optimistic.

J. B. Tuthill, president of the Tuthill Building Material Company, said: "Trade is not nearly as slow as it was a month ago. Building operations in and around Chicago are picking up rapidly. The demand for lime and cement is not quite as good as it should be, but believe this condition will change soon. There is so much work in the hands of the architects that this year should be good. Things have been opening up fairly well and although still a little slow, I believe we will have a fine year."

"I have noticed considerable more activity among builders," said Walter S. Woods, president and treasurer of the Standard Material Company. "This past month has been very good with us, and we are more than satisfied with the way things are going. Cement workers are now beginning to start on jobs and from now on things will move along rapidly. We find the best demand for our cement, lime, and torpedo sand at this time. Most of the buildings going up in our neighborhood are flats, small and large, and some stores. Part of the past month was cold and the demand was therefore a little light at that time, but I believe the season has opened up now and will continue."

The Templeton Lime Company has purchased the interests and good will of the Crescent Material Company. J. B. Coates, who was formerly connected with the Crescent Material Company, is now the south side agent for the new concern. This is in fact an old firm, the south side branch being the new part. The Templeton Lime Company has an extensive yard at Homan and Grand avenues. At both their yards their representative reported that trade was coming along in fine shape. "From the orders booked at the present time, the indications are that they will see a good season at both yards. Flats, from a small 2-flat building to 48-apartment houses, are being constructed. Cement and lime find a good demand, with prices steady and good for this month of the year. Prices are at this time not very high, but show signs of climbing. There is plenty of work to be had and the west side yard is very busy."

W. Lamoureux, manager of the Lake Building Material Company, reported: "Building operations are picking up rapidly. The demand for cement, lime, rubble and crushed stone is good now, and prices are steady. It is not yet time for the larger buildings to start up, but when they are under construction trade will be much better. The year is starting out in fine shape and with firm prices. I believe this will be a good year for all of us."

H. O. Heitman, president of the Union Coal, Lime & Cement Company, stated: "The demand for lime and cement is very good, and we are as busy as can be expected at this time of the year. There are many concrete projects in this neighborhood which will call for the use of a large quantity of our material and when these are well under way business will be very good."

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The Vulcan Construction Company has been formed in Chicago. Capital stock $10,000.00. General contracting and construction business. Incorporators, James H. Dunn, E. C. Rockwell and Eelbert A. Clithero.

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The Chicago Building and Special Construction Company, Chicago, to do a general building and construction business. Capital stock, $10,000.00. Incorporators, Joseph W. Errant, Charles J. Errant and Edward Davidson.

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Thomas L. Leggett, of Pittsburg, is completing a sand plant at Queen's Junction, near Butler, Pa., to have a capacity of four cars a day and employ twenty men.

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The Powell-Graham Company has been incorporated at Nashville, Tenn., with $4,000.00 capital stock. J. L. Powell, Joseph Graham, Jr., and W. C. Harrell are the incorporators. The concern will deal in lime, brick and other building materials.

### PHILADELPHIA RETAILERS.

Philadelphia, March 16.—Although there has been no large quantity of big work in concrete building during the last month, numerous plans are being laid for extensive building operations; also a charter has been applied for at Harrisburg, Pa., by W. A. Lathrop, Rollin H. Wilbur and H. F. Baker, of Philadelphia, for twenty-eight electric companies, which electrification is to cover three counties, viz.: Lehigh, Carbon and Northampton, and will call for the erection of twenty-eight electric plants, the proposition involving about $4,000,000. The character of the buildings to be erected has not as yet been ascertained. The volume of work going on the boards of late, and incidentally the favorable weather for outdoor work, have given an impetus to the building supply trade, which promises well for the future. Lime and kindred lines are moving along with fair activity, while cement, although not as lively in Philadelphia as in some other sections, is showing some life, with every indication for an enlarged activity as the season advances. It is noticeable that there is very little cutting in prices.

The owners of the "New Cement Gun" have been demonstrating its practicability for the benefit of the Pennsylvania railroad and the city of Philadelphia, and the test at Sixteenth and Market streets, where the arch under the railroad is being cemented, has proved a success. The demonstration here was made under the special direction of Richard L. Humphrey, president of the National Association of Cement Users. Some two hundred feet of the surface of the arch was sprayed with a half-inch thickness of a white cement composition, forming a permanent white surface like stucco. The "gun" is located at the nozzle of two lines of hose; through one flows compressed air, which forces cement and white sand at a pressure of 30 to 60 pounds; the other hose is filled with water. At the nozzle the sand, cement and water meet through the pressure of the air and are mixed. The cement then is squirted over the surface much in the manner of modern calcimining.

The Charles Warner Company, 810 Land Title Building, extensive handlers and manufacturers of all kinds of builders' supplies, reports a steady activity in every branch, and feels confident the oncoming suitable weather will greatly conduce to a livening up of business throughout the building trade.

The Lawrence Portland Cement Company, 616 Harrison Building, states that, although trading is not as brisk as in some other localities, a gradual waking up is perceptible and prospects for the year are encouraging.

H. M. Fetter, vice-president William G. Hartranft Cement Company, 1115 Real Estate Trust Building, is disposed to be lenient as to conditions. He says although things have not quite come up to expectations, there has been a quickening of late

and every day shows a marked improvement. He anticipates steady business from now on.

Edmund B. Nuss, former burgess of Conshohocken, Pa., and the oldest contractor and builder of the place, dropped dead on March 9, as did his son Milton three years ago.

The Delaware Construction Company, Wilmington, Del., was incorporated on March 10, under Delaware state laws; capitalized at $75,000.00.

The Brown Engineering and Equipment Company, Pittsburg, Pa., obtained a charter under Delaware state laws on March 14. Capitalization, $25,000.00.

Burton C. Simon has taken title to about ten acres of ground between Nineteenth and Twentieth streets, McKean and Passyunk avenues, upon which he will erect 353 houses, the operation to cost about $800,000.00. Work is to start immediately.

The John T. Bailey Company will build a four-story reinforced concrete warehouse, 305 by 79 feet, on ground recently purchased from the William J. McCahan Sugar Refining Company, and adjoining the property already owned by them.

Charles E. Biddle will erect 32 two-story houses on McClellan street, west of Twenty-fourth, and four dwellings at the northwest and southwest corners of Twenty-fourth and McClellan streets; cost, about $62,200.00.

Fred A. Havens & Co. have been awarded a contract for making extensive improvements at the plant of the Link Belt Engineering Company. The cost will be about $40,000.00.

## FORT DODGE RETAILERS.

Fort Dodge, Ia., March 20.—Retail dealers in builders' supplies in this city believe that indications are bright for a good year's business. They were satisfied with the volume of business last year, got fair prices and say that conditions in building circles are all that can be expected so far. With the opening of the building season they expect to have busy times, which will last late into the fall.

The headquarters of the Citizens Lumber Company are in Minneapolis, Minn.; J. Q. Chapman is the resident manager here. This branch was established eight years ago. While lumber is its principal business, they carry a large stock of builders' supplies. It handles cements of the Sandusky Portland Cement Co., the Iowa Portland Cement Co. and the Iola Portland Cement Co., of Kansas; plasters of the U. S. Gypsum and Cardiff Gypsum Companies; lime in barrel and hydrate of the Marblehead Lime Company, and are the state agents in northwestern Iowa for Fowler & Pay's (Mankato, Minn.) brown, white lime and bricklayers' cement; they have the agency for the sewer pipe and tile of the Plymouth Clay Products Co., of Ft. Dodge, and handle common and pressed brick made by the Golddroake Brick Co., of Iowa, and pressed cement blocks.

The old lumber and coal yard of Townsend & Merrill Co., established fifteen years ago, was bought by the E. H. Williams Lumber Co. last July. It handles cement of the Northwestern States Portland Cement Co., of Mason City; Iowa; plasters of the Cardiff Gypsum and Plymouth Plaster companies; lime in barrel and hydrate of the Marblehead Lime Co., and sewer pipe of the Lehigh Pipe Co., of Ft. Dodge. It has excellent shipping facilities and does a large business in builders' supplies. Its officers are: E. J. Breen, president; Joe Wheeler, vice-president, and E. H. Williams, secretary-treasurer and manager.

Mason & O'Connell, dealers in lumber, sash, doors, building paper, lime, cement and plaster, have been in business here five years. Their yard has been in existence for twenty-five years and more. They handle cements of the Atlas and Iowa Portland Cement Companies; the plasters of the Plymouth Gypsum Company; lime in barrel and hydrate of the Marblehead Lime Company, and brown lime in barrels from Fowler & Pay, Mankato, Minn. They report a fair amount of building in prospect here this year. They are doing a good business and report that 20 per cent and probably more of all the cement they sell goes to the farming districts tributary to Ft. Dodge. R. M. O'Connell has been the manager of this yard for the last ten years.

Owen Conway & Son are dealers in lumber, lime, cement and plaster. They do a large business and have good shipping facilities. They handle cements of the Atlas and Iowa Portland Cement Companies; plaster of the U. S. Gypsum and Plymouth Plaster Companies; lime in barrel and hydrate of the Marblehead Lime Co., and brown lime from Fowler & Pay, Mankato, Minn. Owen Conway established this business in 1869.

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Heintz & Rasmussen, Chicago. Capital stock, $3,000.00. General contracting and constructing business. Incorporators, Nathan L. Kreuger, Monte H. Sadler and Julius Genss.

## LOUISVILLE RETAILERS.

Louisville, Ky., March 18.—Seldom if ever has the prospect for building in Louisville been more favorable than is now presented to the retailers in building material.

To give an idea of the work which will be done within the next few months, it might be mentioned that the $1,000,000.00 city hospital, $200,000.00 Weissinger-Gaulbert annex, $750,000.00 Jones hotel and $200,000.00 annex to the Seelbach are some of the larger jobs which are being prepared, for some of which actual contracts have been let. This means business, if anything does, and when it is considered that a lot of smaller buildings, including stores, apartment houses and residences, are in process of being designed, there is no field for argument against the statement that the building supply men should have a lot to do during the coming months.

One proposition which is attracting considerable attention and which it is hoped can be settled within the next few months is that involved in the mechanics' lien law.

Burrell & Walker, who have been well known in the local trade as dealers in tiling and other clay products, have made an assignment in favor of R. L. Burrell. This was due to the fact that F. R. Burrell, who had been the principal stockholder for several years, sustained a stroke of paralysis six weeks ago and is in such a condition that he will be unable to take part in business for a long time to come. His son, F. S. Burrell, has been winding up the affairs of the company, the stock and property of which will be sold at auction March 21.

Edward Streicher, of the National Roofing & Supply Company, has been in the East for several weeks, combining business and pleasure. Conditions with the company have been fairly quiet, but the outlook is good.

George F. Meldrum, of the Union Cement & Lime Company, said that his firm has been doing a good deal of business, in spite of cold weather, during March. He believes that if war talk subsides and Congress doesn't turn too many somersaults, conditions throughout the year should be unusually good.

The Culley Cement Block Company has entered the retailers' realm, and now handles cement. Kosmos is its principal line, but it also handles a fair business in Lehigh. The demand for cement was reported by this firm to be good.

S. F. Troxell said that the outlook in the roofing field is good, in spite of the fact that weather conditions have prevented many contracts from being awarded. He has been figuring on a large number of jobs in and out of the city, however, and is looking for an active spring.

## TWIN CITIES RETAILERS.

Minneapolis, Minn., March 18.—In the Twin cities there have been several good-sized structures projected or started and more are in view, while with the smaller buildings, the prospects are exceptional. There has been a nice advance demand for the different materials. Cement is commanding a good early business.

The Fame Stonewood Company, of St. Paul, has begun establishing agencies through the Northwest. The company will mix the material at its factory, ready to lay. Plasterers and cement workers are being sought for handling the product.

C. A. P. Turner, a prominent figure in concrete engineering, has recently been granted letters patent on the mushroom system of reinforced concrete construction. Mr. Turner is the originator of the flat slab and column construction. This patent, which is but one of a series covering the Turner invention, is very broad in its scope, and it is claimed that it will affect the claims of a number of others operating along the lines of the mushroom system.

Fred Anderson, a contractor and builder of Minneapolis, has filed in bankruptcy, with liabilities of $21,142.00 and assets nominally of $40,192,000, the exempt being placed at $11,000.00.

George Hollis Carsley, a prominent architect of St. Paul, has moved his offices to Helena, Mont., where he will continue in practice.

V. E. Hedlund, who has been with the Plymouth Paving & Construction Company, of Minneapolis, has bought the concrete construction business of Berglund Bros., of Princeton, Minn. The business will be continued as the Northern Cement Construction Company and it will operate in cement construction through northern Minnesota.

Building permit totals in St. Paul for February were about $1,100,000.00, as against $543,700.00 for the same month of a year ago. The month exceeds the months of January and February of any previous year.

Minneapolis had a heavy gain in building for February, with a building permit total of $1,597,150.00, against $485,980.00 for that month a year ago. The two months of this year are well ahead of the same months for last year.

Anderson & Engstrom, cement contractors at Alexandria, Minn., have dissolved partnership, J. F. Anderson continuing the business.

The Minneapolis Builders' Exchange will take up the question of trade education in the public schools and it seems probable that there will be an extended course instituted next fall.

The new high bridge being completed by the Soo Line over the St. Croix river will be 2,682 feet long and 180 feet above the water. The road constructed the footings, using about 10,000 cubic yards of concrete in the work.

P. G. German, architect, of Duluth, has drawn sketch plans for the proposed agricultural hall for the Minnesota state fair grounds between St. Paul and Minneapolis. It will be of reinforced concrete, steel and tile construction throughout. Cost about $350,000.00.

B. F. Yeates & Son, real estate agents of Minneapolis, are pushing a project for the erection of a 10-story reinforced concrete building to be erected at Fourth street and Hennepin avenue, to provide quarters for physicians and dentists. Cost about $700,000.00.

Harry W. Jones, architect, of Minneapolis, has prepared plans for a stucco plaster and frame church building for the Temple Baptist congregation, Minneapolis, to cost $30,000.00.

The Leonard Construction Company, of Chicago, has the contract for the 10-story reinforced concrete hotel building for the Curtis-Mackey Company, Minneapolis, to be erected at Third avenue south and Tenth street. It will be 310'x130'. Cost, $1,200,000.00.

The Minneapolis Club has had plans prepared by Edwin H. Hewitt, architect, for a reinforced concrete athletic and gymnasium quarters to be built adjoining the club.

Herman Kretz, the St. Paul architect, has a project for a 12-story reinforced concrete office building, to be erected at Fourth and Wabasha streets. A proposition has been made to furnish two floors for the use of the Commercial Club and that body has the project under consideration.

## WEST COAST RETAILERS.

San Francisco, March 16.—The building material trade picked up a little in the latter part of February, but for nearly two weeks past it has been impossible to do any outside work on account of the rain, and the trade is extremely dull all over California. Building work, as indicated by the permits issued, has been on about the same scale as in January, and very little below the February record last year, the total being $1,760,430.

The city is preparing to resume paving work in an active way this spring, and a number of large jobs are also in prospect in other towns in the vicinity. There is an unusual amount of sewer work coming up in the interior, but so far comparatively few contracts have been let.

The North Point Company, of this city, has taken over the warehouse of the North Point Warehouse Company at Bay and Mason streets, and the retail business in cement, lime, plaster, etc., will be continued by the new concern. S. H. Adams, formerly connected with the old company, is president, and Roger Topp secretary and treasurer.

The Western Building Material Company, which does a general business in building materials, is now agent for the Carnegie Brick Company, and is getting a large business in its various products. One of the most active lines is fire brick, the Carnegie product being now used by all the cement manufacturers around San Francisco, as well as in the north.

The National City Lumber Company, of National City, Cal., is extending its business into general building material lines, and is now carrying a full stock of cast cement pipe. The company is getting considerable business in this pipe, as well as in cement, and is preparing to install a pipe manufacturing outfit.

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The Lund Contracting Company, Chicago. Capital stock, $10,000.00. Constructing contractors. Incorporators, John T. Wilson, A. G. Tidmarsh and Sten Lund.

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Mangels & Richardson, of Hannibal, Mo., received the contract to erect the South School annex in that city for $19,941.

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George Christian, Jr., of the Marion Dump Wagon Company, Marion, Ohio, spent several days in Chicago this week.

## PITTSBURG RETAILERS.

Pittsburg, Pa., March 17.—Builders' supply men are delighted to see the sun occasionally, for it will hurry on to the boards a lot of estimates which have been hanging fire for months. Retailers are not carrying heavy supplies of building material. They prefer to lower their interest and insurance charges and await development in the building situation rather than to load up heavy stocks to be carried over, as has been the case in recent years. Outside towns, notably the big industrial towns of western Pennsylvania, are booming and houses will go up by the hundred in most of these places. In most respects the builders' supply men feel that this year will roll up much larger totals than 1910, although it is going to be more of a home stretch affair, inasmuch as last year two-thirds of the business was done during the first four months and then things fell pretty flat.

The Houston Brothers Company is having a big run this spring on agricultural lime and its plant at 32nd street is grinding steadily. The company reports good business also in street supplies and believes that this year's trade will round up well.

W. H. Kampner, M. J. Pritts, P. L. Casebeer and W. G. Carter, of Somerset, Pa., have organized a new company which will leal in coal, lime, brick, ice and builders' supplies. They will at once open a large yard in that town.

Miller & Coulson are having an excellent trade this spring and report things in general much better than last year. Their cement business is picking up right along and at their plant at Salineville, Ohio, they are turning out a large quantity.

The house building situation in the South Side hills is probably more encouraging than in any other part of the city. This, together with the fact that a large amount of paving is to be done there this year, is making excellent business for the Beechview Builders' Supply Company and other concerns in that district.

The Pittsburg, Butler, Slippery Rock, Grove City & Northern Street Railway Company has received its charter and is arranging to start work shortly on a trolley line 66 miles long, to cost $3,500,000.00. The first section will probably be built between Butler, Pa., and Grove City, Pa., and thence it will be extended to Meadville, Pa. This is one of many trolley projects in this district, which are going to give builders' supply men a large amount of work to figure on soon.

Bellevue, Pa., one of Pittsburg's best North Side suburbs, has voted to bond the borough for $25,000.00, which will be spent this year for street improvements.

County commissioners let contracts last week to the Universal Portland Cement Company for furnishing cement to the Standard Bitulithic Company for resurfacing the Hulton road with Warrensite at 37 cents per square yard; to the Pittsburg Amisite Company for resurfacing the Verona road at 85 cents a square yard; to the Clydesdale Stone Company, Morrison & Co., Booth & Flinn, Ltd., and Pope Stone & Brick Company extensive contracts for ballast.

The Whitaker Fireproofing Company, of Canal Dover, O., capital $10,000.00, has been formed here by John J., R. E. and C. C. Whitaker, L. D. S. Klatz and H. C. Downer. It will be an auxiliary of the Whitaker Fireproofing Company, of Waynesburg, Pa.

The West Penn Railways Company has arranged to spend at least $20,000,000.00 this year in the construction of additional trolley lines in Allegheny, Westmoreland and Fayette counties. Its headquarters are in the Bank for Savings Building, Pittsburg.

The Pittsburg Building & Supply Company has been organized by Morris Aronson, Israel Parker and William Cohen, of this city. It will deal in lumber and all kinds of builders' supplies.

The United States Sewer Pipe Company through its president, John H. Jones, who is also president of the Pittsburg-Buffalo Company, of this city, has secured the right to do business in West Virginia, where his company is pushing hard for trade.

The Murray-Cosgrove Company has been organized in Pittsburg by Charles F. M. and John and William J. Cosgrove. The company will handle all kinds of builders' supplies and lumber.

The Central Contracting Company is a new concern at Brookville, Pa., organized by F. W. Edmundson, George E. Flanigan and Arthur B. Stewart, of that place. It will engage in all kinds of heavy construction work, such as tunnels, tipples, reservoirs, sewers, etc., and will be a good buyer of builders' supplies.

The Pittsburg, Butler & New Castle Railway Company has let contracts for double tracking its line from Pittsburg to Bradford's Woods, a distance of twelve miles. It will make other extensive improvements to its line this summer.

The Knoxville & Fifth Avenue Tunnel Company has been formed in Pittsburg by Joseph F. Grimes, J. W. Patterson, John M. Philips, J. E. Roth and W. E. Sankey. It proposes to build a tunnel from Fifth avenue under Chestnut street to a point in Second avenue.

## TORONTO RETAILERS.

Toronto, Canada, March 16.—Retail dealers in builders' supplies talk encouragingly of the prospects concerning this year's business. They believe that indications point to an exceedingly active year in building circles, more so than the previous year, which proved more than satisfactory in volume of trade and conditions generally. The retail dealers of this city are live, energetic, carry large stocks of builders' supplies, possess excellent shipping facilities, and their yards are admirably arranged for handling material economically and delivering it promptly to jobs within the corporation limits. The territory they supply with builders' material extends to the boundaries of the province of Ontario.

Britnell & Company, Ltd., operate three large yards in Toronto. The main yard and office is located at 1117½ Yonge street and the Canadian Pacific Railway tracks; the other two yards are on the Grand Trunk Railway tracks. Its officers are William Britnell, president; A. E. Britnell, treasurer; A. M. Britnell, secretary, and G. W. Britnell, managing director. The business was founded by William Britnell in 1882 and incorporated in 1908. The yards occupy about two acres of ground, equally divided, each having switch tracks running into the yards. Forty horses, fifteen teams and ten single wagons are required to do the hauling. These horses are among the finest seen on the streets in Toronto. It operates a wagon and blacksmith shop for repairing, and builds all the wagons it uses for deliveries of material. It owns and operates stone quarries at Burnt River, Ont., the output being six cars of building stone daily and 150 tons of crushed stone per day, and a gravel pit at Cooksville, Ont., with an output of 200 yards a day.

The company handles cement from the Canada Cement Company and Alfred Rogers, Ltd.; hard wall plaster from the Albert Mfg. Company, N. B., and plaster Paris from West Toronto; sewer pipe from the Dominion and Ontario Sewer Pipe Companies; fire brick, fire clay, wall coping from J. J. Shep-

NEALE & TERRY'S QUARTETTE OF PRIZE WINNERS, TORONTO, ONTARIO, CAN.

pard, Cleveland, O., and a full line of builders' supplies. It also does a big wholesale trade in Indiana Oolitic Limestone. Its trade extends east to Quebec and west to Sarnia.

In the heart of the city, at 910 Yonge street, the building material yard of Neale & Terry possesses excellent transportation facilities. This firm was established two years ago, but each member was in the builders' supplies business here for more than fifteen years. Their warehouse has a storage capacity of 1,000 barrels of cement and plaster. They handle the cements of the Canada Cement Company and Alfred Rogers, Ltd.; plaster from the Albert Mfg. Co., N. B.; lime in bulk and hydrate from Rockwood and Guelph; sand and gravel, crushed stone and sewer pipe, which is their long suit, from the Dominion and Ontario Sewer Pipe Companies; fire brick from England and the General Refractories in Sandy Ridge, Pa., and a full line of builders' supplies. They take great pride in their quartette of prize winners which carried off the prize at both horse shows here the last two years. They do a large trade in the city, making prompt deliveries within the corporation limits. During the winter months they turn their energies to the sale and delivery of coal and wood.

The F. G. Terry Company was founded by Edward Terry in 1860. Its building material yard and office are located at George and Front streets, with switch tracks from the Grand Trunk and Canadian Pacific Railways running alongside the yard. The storage capacity of its warehouses is approximately 2,000 barrels of cement and plaster. It carries a full line of builders' supplies, including cements from the Canada Cement Company and Alfred Rogers, Ltd., plasters, lime in bulk and hydrate from the Wellington Lime Company; sand, fravel, sewer pipe, etc. Its volume of business is large, principally confined to Toronto and Ontario. Ten horses and five teams are employed to do the hauling of material to jobs in all parts of the city.

The Ontario Lime Association is the oldest builders' supplies firm in the city, having been established some seventy-five years ago. Its main yard and office are located at 118 Esplanade street, on the Grand Trunk Railway tracks, with seven branch yards in the city, at the following points: Pape avenue, East Toronto, and Parkdale on the Grand Trunk Railway; West Toronto, Manning avenue, North Toronto on the Canadian Pacific Railway, and the Belt Line branch yard just opened on the Grand Trunk Railway. The total storage capacity of warehouses in these yards is great, approximating 50,000 barrels of cement and plaster. At these yards a full line of builders' supplies is carried, including cement of the National Cement Company, of Durham, Ont.; the Albert Manufacturing Company's plaster; lime in bulk and hydrate from the Wellington Lime Company, of Toronto, and the Kelley Island Lime and Transport Company, of Cleveland, O.; sewer pipe from the Dominion and Ontario Sewer Pipe Companies, and fire brick and fire clay from the Elk Fire Brick Company, St. Mary's, Pa., and from Scotland; sand and gravel. The company owns and employs twenty-four single wagons for hauling material to jobs in the city limits, besides hiring extra teams. Its volume of trade is exceedingly large and principally confined to Toronto.

It is said that John Maloney was the first man to ship stone into Toronto by rail, thirty-five years ago. His building material yard and office is located at the corner of Queen and Dufferin streets, on the the Canadian Pacific Railway's tracks. He has large quarries at Shaw, forty-two miles from Toronto, equipped with a No. 4 and No. 5 Gates Crusher, which produce 300 tons of crushed rock daily. He also owns and operates the Humber Brick Yards at Humber Bay, which have an annual output of two millions of brick. His warehouse has a storage capacity of 3,000 barrels of cement. It is stated that he handled 15,000 barrels of cement last year from the Canada Cement Company; he carries sewer pipe of the Dominion Sewer Pipe Company; fire brick and fire clay from the Pittsburgh Fire Clay Company, of Pennsylvania; lime in bulk from the Wellington Lime Company, and hydrate from H. W. Calkins. He owns and uses ten teams in his city yard for delivering material to jobs in the city limits, and uses five teams in his quarry. He got the city contract for crushed stone this year and says that prospects for business seem brighter than even last year's. He will enlarge his yard the coming summer and make other extensive improvements.

No information could be gotten from James Muldoon, of J. Muldoon & Co., at Queen Street Subway. He was grouchy, and for information wanted, referred to his lawyers. The desired information was, however, furnished by his competitors. Here is what they said: "Jim is a mighty good sort: wholesouled, genial, a hustler, does a big business and is square as a die, but when he loses a law suit, all bets are off for a couple of days; but no one in Toronto lays any grouchy periods up against Jim."

The John Lucas Company was established six years ago and does a prosperous business. It operates three yards, the main yard and office located at 1120 Bathurst street, with switch track running into yard from the Canadian Pacific Railway. The storage capacity of its warehouses is stated to be 5,000 barrels of cement. It handles the cement of the Canada Cement Company; plaster of the Albert Mfg. Company, N. B.; lime in bulk and hydrate of the National Mortar & Supply Company, of Pittsburgh, Pa.; sewer pipe of the Buckeye Fire Clay Company, Urichsville, O., and the American Sewer Pipe Company, Akron, O., sand and gravel, etc. It owns and operates quarries at Orangeville, Ont. The output of the quarries is three cars a day of crushed stone and one car of building stone. Two teams and seven singles are used to haul material to jobs in the city limits.

S. McCord established his builders' supplies yard at 696 Queen street, east, in 1900. He operates two yards across the street for storage purposes only, into which switch tracks run from the Grand Trunk and Canadian Pacific Railways. He carries a large stock of cement, plaster, lime, sewer pipe, fire brick, fire clay, including a full line of builders' materials. He owns five single wagons, used for delivery of materials to jobs within the city limits. His trade is confined to Toronto.

The Rogers Supply Company is among the oldest and largest concerns dealing in builders' supplies in Toronto. Alfred Rogers is vice president and general manager of the Elias Rogers Coal Company, which was founded by Elias Rogers forty years ago, and president of the Alfred Rogers, Ltd., which controls the output of the independent cement plants in Canada. The Rogers Supply Company handles cement at retail, crushed stone of all kinds, fire brick, fire clay, wall coping, roofing material, etc. It has the exclusive agency for Canada for "Crescent" fire brick, made by the Bickford Fire Brick Company, of Curwensville, Pa.

Its branch yards in Toronto are located at Bathurst street and the tracks of the Canadian Pacific and Grand Trunk Railways, Lansdowne street and

the Canadian Pacific and Grand Trunk Railways tracks, North Toronto branch on the Canadian Pacific Railway tracks, Pape avenue and the Grand Trunk tracks, Esplanade street and Church street branches and the Canadian Pacific and Grand Trunk tracks and the Bay. The storage capacity of its warehouses at each branch yard averages ten cars of cement, and each branch has bins holding crushed stone ready for deliveries.

The Wellington Lime Company, with main offices at 75 Yonge street, was established twelve years ago. It does a very extensive business and is reputed to handle about half the lime used in Ontario. It handles the gray and white lime in bulk. D. D. Christy is its president and W. L. Scott its secretary.

The large builders' supplies firm of Smyth & Ryan was established five years ago. They operate two yards, one at Bloor and St. Helens avenue and the other, which was opened last week, at Merton street, North Toronto. Switch tracks run into both yards from the Grand Trunk Railway, giving each yard the best of transportation facilities. They own and operate a gravel pit of forty-four acres, which is equipped with two orange peel buckets. They were the first, it is claimed, to ship gravel in carload lots into Toronto. The storage capacity of their warehouses is said to be approximately 2,000 barrels of cement and plaster. They own and use twenty-five horses, ten teams, five single wagons, besides hiring extra teams for delivering material to jobs within the city limits. They are also extensive cut stone contractors, using largely Indiana Oolitic Limestone and employ during the building season fifteen stonecutters. Both of their yards carry large quantities of cement from the Canada Cement Company and from the Alfred Rogers, Ltd.; plaster from the Albert Mfg. Company, N. B.; the "Banner" hydrated lime of the National Mortar & Supply Co., Gibsonburg, O., and the Standard White Lime Co., Guelph, Ont.; sewer pipe of the Dominion and Ontario Sewer Pipe Companies, sand, gravel, crushed stone, etc.

Ten years ago, F. B. Hartney's large builders' supplies yard at 1720 Dundas street was established by his father. In 1908 he succeeded him and is enjoying a large volume of trade, supplying the territory of West Toronto with building material. A switch track from the Grand Trunk Railway runs into the yard 300 feet in length. The storage capacity of his warehouse is about 1,000 barrels of cement. He owns four horses and four single wagons, used for hauling material to jobs. He handles a full and complete line of builders' supplies, including cement, plaster, lime in bulk and hydrate, fire brick, fire clay, etc.

The Gibson, McCormack Irvin Company, Ltd., was established in 1902. The officers are: R. E. Gibson, president; R. L. McCormack, vice president; W. C. Irvin, managing director; Charles Irvin, secretary. The company operates three yards. The main yard and office is at the corner of Keele and Vine streets, branch yards at Bathurst and Dupont streets, and branch yard at Western, Main street. The first two yards have switch tracks running to the Canadian Pacific Railway, and the last a switch track to the Grand Trunk Railway. The storage capacity of its warehouses is about 1,500 barrels of cement. The yards handle full lines of builders' supplies, cement, plaster, lime in bulk and hydrate, sewer pipe and wall coping. The company's principal business is lumber, and its trade in builders' supplies is confined to Toronto and its suburbs.

## CENTRAL ILLINOIS RETAILERS.

Springfield, Ill., March 21.—New incorporations and changes in the Central Illinois field include:

White Hall Lumber Company, White Hall. $6,000.00. Building materials. Robert E. Shaw, Charles E. Stetson, William F. Diliman.

Flora Lumber Company, of Flora, Fairfield. $10,000.00. General contracting. F. M. Brock, T. L. Dickey, C. F. Keith.

Okaw Contracting Company, Vandalia. $15,000.00. General contracting. E. C. and F. W. Spencer, William G. Reed.

J. J. Wuellner & Son, Alton. $10,000.00. General contracting. Joseph J., John C., Frances and Ida Wuellner.

Elburn Lumber & Implement Company, Elburn. $25,000.00. Building materials. J. W. and E. W. Elden, W. K. Morris.

W. D. Alexander & Co. will open a yard at Cabery.

George A. Roberts, junior member, has taken over the business of Parker & Roberts, Shelbyville, Ill., L. A. Parker retiring. George Roberts, Jr., is the partner in the firm of Roberts & Son.

W. H. Hunter succeeds R. B. Coddington as manager for the Andrews Lumber Company at Paxton, Ill. Mr. Coddington retires because of ill health.

Joseph Haigh & Sons Company, of Chicago, has been incorporated. Capital stock, $12,000.00. General contracting. Incorporators, Joseph Haigh, Arthur H. Haigh and Thomas E. Milchrist.

## WATERLOO RETAILERS.

Waterloo, Ia., March 20.—It is believed by dealers in builders' supplies that not as great activity will be experienced here in building circles as last year, but notwithstanding this condition the demand for cement plaster and lime, it is felt, will be active, as the farming districts tributary to the city of Waterloo show indications of greater consumption of these materials than in the past. The retail builders' supply dealers of Waterloo are live wires and are doing a good business and feel encouraged over prospects the coming year.

The Waterloo Lumber Company's office at 318 East Fourth Street has done business under the present firm name twenty-three years. The business was established fifty years ago on the same spot where it is now. Its officers are: Warren Brown, president and manager; Nat J. Brown, vice president; Stephen D. Brown, secretary. The company operates two yards, one at 318 East Fourth Street and one at Sycamore and Mullen Streets, known as the "Illinois Central" yard. Its warehouse, which is beside the Illinois Central tracks, has a storage capacity of 1,500 barrels of cement and plaster. It handles "Chicago AA" cement; plaster of the Cardiff Gypsum Plaster Co., U. S. Gypsum Co. and the Plymouth Gypsum Co.; lime in barrel and hydrate of the Marblehead Lime Co. Where they sold five barrels of hydrate four years ago it is now selling ten to twenty barrels of hydrate, with a demand rapidly increasing. Sewer pipe of the Plymouth Clay Products Co.; brick of the Ft. Dodge Brick and Tile Co.; fire brick and fire clay of the Mexico Fire Brick Co., Missouri. Warren Brown is the oldest lumberman in Waterloo, who reported business last year the second best they have had in half a century.

The Shepherd Lumber Company last October took over the business of the Wisowa Lumber Co. It handles cement of the Sandusky Portland Cement Co. and plasters of the U. S. Gypsum Co. and the Plymouth Gypsum Co.

The Canfield Lumber Company's business was established in 1904 and incorporated in 1907. Its officers are: Lee Canfield, president; P. E. Canfield, treasurer-secretary; C. J. Schneck, vice president. Its principal business is lumber and coal. In builders' supplies they handle cement of the Iowa Portland Cement Company, Des Moines; plaster of the American Cement Plaster Company; lime of the Ash Grove Lime & Cement Company, of Kansas City, in barrel and hydrate; the demand for the latter is growing rapidly. It carries a full line of roofing material and building material. Its yard is splendidly arranged for handling material economically; is on the Great Western Railway. The warehouse beside the switch track in the yard has a storage capacity of 1,200 barrels of cement and plaster. It employs four teams, which make prompt deliveries within the city limits. Business was reported good last year, with indications for fair business this year.

The business of Moore & Moore, dealers in lumber and builders' supplies, was established nearly fifty years and have been doing business under the present firm name four years. They moved to East Fourth Street, corner Summer Street, last month. Their yard has a frontage of 350 feet on Fourth and on Summer Streets. A new two-story brick office building at the yard was finished March 1 last, which they are occupying. Their warehouse has a storage capacity of 1,000 barrels of cement. It is beside a switch track 1,000 feet long, which runs into the yard from the Illinois Central Railway. They own three teams and one single wagon that make prompt deliveries, handling material to jobs within the city limits. They handle Chicago AA Portland cement; plaster of the Plymouth Gypsum Co.; lime in barrel and hydrate of the Marblehead Lime Co., the demand for hydrate it is reported is growing rapidly; fire brick, fire clay and common brick of the Gethman Brick Co., Ft. Dodge.

T. J. O'Connell, at Fifth and Bluff Streets, does a good volume of trade in builders' supplies. He handles "Owl" cement of the German-American Portland Cement Works; plaster of the Acme Cement Plaster Co.; lime in barrel from the Pierce City Lime Co., and pressed brick. His yard occupies half a block and has a switch track running into it from the Chicago & Rock Island Railway. His warehouse has a storage capacity of 1,500 barrels of cement.

The firm of Bartlett & McFarlane, dealers in coal and builders' supplies at 1165 E. Fourth Street, was established six years ago. Its yard is on the Illinois Central tracks. It operates a stone quarry at the north end of the town, which produces large quantities of crushed rock and building stone. It handles Universal Portland cement; lime in barrels from Ft. Dodge and plasters of the U. S. Gypsum Co. and Plymouth Gypsum Co. It operates two Anchor cement block machines, manufactured by the Anchor Cement Block Machine Co., of Rock Rapids, Ia., which put out three hundred concrete blocks daily, mostly used in Waterloo for foundation.

The C. W. Chapman Lumber Company was established in 1900. Its officers are: C. W. Chapman, president; E. A. Engler, vice president; Oliver Chapman, treasurer, and Noble Little, secretary. Its yard is located at the corner of East Seventh and Water Streets, occupying half a block of ground. The warehouse across the street is located beside a switch track from the Illinois Central and Great Western Railways. The storage capacity of this warehouse is approximately 3,500 barrels of cement. They handle the "Owl" cement of the German-American Cement Works; the Ft. Dodge plasters, and lime in barrels of the Pierce City Lime Co. It employs two double teams the year around. It also operates ten line yards in Central and Northwestern Iowa.

## NASHVILLE AND THE SOUTHEAST RETAILERS.

Nashville, Tenn., March 16.—The Nashville Builders' Supply Company reports spring activity opening up, but not at its zenith yet. Cement trade is reputed fairly good. Retail prices are running around $2.40. Sand and lime business is fairly good. The management looks for a great trade progress in about thirty days.

The J. N. Stone Construction Company, of Nashville, has been incorporated with $25,000.00 capital stock. The incorporators are: J. N. Stone, A. G. Lester, W. J. Anderson, C. T. Matthews and J. A. Stone. The office of the company will be in the Cole Building. It already has several important contracts on hand, including the concrete work on the High School Building at Broadway and Eighth avenue.

The Fischer Concrete Company and the Nashville Builders' Supply Company have secured desks at the Builders' Exchange.

R. T. Creighton has returned home after an extended trip to Birmingham, Memphis and Rockport, Ala., where his quarry is located. Mr. Creighton makes these trips every month for his firm, Foster, Creighton & Gould.

Hoover & Co., plastering contractors, report trade quiet at present, but outlook fair for later in the spring and summer.

J. F. Scott, of Cookeville, Tenn., has been awarded the contract to erect the buildings for the new preparatory school in Cookeville and will begin work within a few days.

## MEMPHIS AND THE SOUTHWEST RETAILERS.

Memphis, Tenn., March 16.—Although March is but half gone, building permits here show a big increase. The activity is chiefly in residences. During the entire month of March, 1910, a total of 371 building permits were issued at an aggregate cost of $422,257.00. In this lot a number of business houses were included, but for March, 1911, up until the 15th, the total permits issued is 183 at a valuation of $302,945.00.

Contracts for furnishing supplies to the city of Memphis for the ensuing year have just been awarded by the board of city commissioners. There were thirty bidders in the field, eleven of whom were successful. The awards were made upon the recommendations of J. H. Weatherford, city engineer, as follows: Union Sand and Material Company for Mississippi river sand and gravel; Davidson Granite Company for granite blocks; John A. Denie Sons Company for cement and standard vitrified sewer pipe; M. Larkin, for sidewalk construction; M. Larkin, for one class of concrete combined curb and gutter; E. Halley, for general overhauling; Memphis Stone and Gravel Company, for macadam; S. B. Walker, for working dirt streets; Chickasaw Iron Works, for miscellaneous castings; E. R. Bryan, for cementing gravel; Roach & Michigan, for paving brick and paving blocks.

The Acme Building Supply Company, of Meridian, Miss., has been incorporated with $50,000.00 capital stock, of which $15,000.00 has been subscribed. The incorporators are: C. L. Gray, R. C. Malone, John L. McLemore and others.

City commissioners have mapped out street paving plans for the next twelve months, the aggregate cost being estimated at nearly $2,000,000.00. Estimates call for improvements to thirty-six miles of streets.

Work will begin some time this month on a modern 8-story building on the southeast corner of Monroe avenue and Third street, to be occupied by the William R. Moore Dry Goods Company. The building will be erected by Mrs. John Gerber at a cost of $275,000.00. Shaw and Pfeil are the architects.

C. V. Joseph, representing the Southwestern Culvert Company, announces that his firm will at an early date open an office in Memphis and that he will be in charge. This firm has a factory at Terra Haute, Ind., and does a large and successful business. The plant will remove its headquarters from Oklahoma City to Memphis.

The Cement Tile Machinery Company, of Waterloo, Iowa, has decided to establish their first branch office in the South in Memphis. In the course of six months or a year the company expects to build up a business sufficient to warrant the establishment of a distributing station here. W. L. Northrup, who has been a traveling salesman for the company for several years, will have charge of the Memphis office.

The 6-story building of concrete to be erected on Madison avenue next door to the Cordova Hotel by Miss Ora Bell Lee and Miss Rowena Lee will have a glass front. The approximate cost of the structure will be $85,000.00. The building is to be completed by September 1.

Larde Bros., at McKenzie, Tenn., are preparing to erect a 2-story concrete residence. They recently completed a concrete front in a bank building in the same town and are doing considerable sidewalk and ornamental concrete work.

The James Alexander Construction Company of this city has the contract for the $254,000.00 Police Building under erection here. It will cover 146'x 200', will be constructed of Carthage marble, with tile partitions, concrete foundations and concrete roof. The building will contain two stories. Shaw & Pheil are the architects.

Work on a 4-story factory building for the Memphis Biscuit Company will begin March 1. The approximate cost will be $500,000.00. The building will be of reinforced concrete and will have floor space of 400,000 feet.

L. T. Lindsey, the lately elected president of the Builders' Exchange, has named the standing committees. E. C. Rice, who has been serving as assistant secretary, has been elected secretary to succeed O. O. Howard.

## ILLINOIS RETAILERS.

Springfield, Ill., March 20.—The closed mine bugaboo, which has been present in Springfield so frequently in the last year, was a depressing offset to the open winter for construction. When one takes into consideration the extent of the mining industry in central Illinois and its consequent bearing on general financial conditions, it is not surprising that a general retrenchment in such a large community should extend to the building materials trade. There is no cry of hard times felt, but the reluctance to build puts a crimp in possible banner sales. A movement towards the suburbs and new additions, with the erection of countless small houses, is a big steadier in lime, cement, sand and gravel.

Frank Fitzsimmons is reaching out in the retail business with his yard at Tenth and Capitol streets, and in a talk with the ROCK PRODUCTS representative predicted a good spring.

Reisch Bros. will build at once an eight-story fireproof store and office building, to cost $100,000.00, on South Fifth street.

Frank Weidlocher, flour and feed dealer, will construct a $40,000.00 fire and damp-proof warehouse at Second and Reynolds streets this spring.

Austin L. Wright, manager at Kilbourne for the Goodell-Skiles Company of Virginia, is a young retailer who believes that the farmer's trade in cement and lime is still in its infancy. Although located in a small town he stated that the revival is notable. Mr. Wright recently landed a contract for a good-sized residence here in Springfield. His firm finds that Atlas Portland cement is a good mover.

New cement and lime houses, with concrete floors, have been built by the Simpson Lumber Company, of Colchester.

H. McMullen, of Kankakee, is erecting a new concrete warehouse 70'x30', two stories high, for cement, lime plaster and sand.

The Gaskins-Walker Lumber Company, of Harrisburg, has been incorporated with a capital stock of $10,000.00, to deal in building materials and to do a general contracting and building business. The incorporators are Edward Gaskins, H. R. Walker and T. Y. Gregg.

The W. H. Putnam Lumber Company, of St. Louis, Mo., has been formed, with a capital stock of $25,000.00, for the purpose of dealing in building materials. Incorporators, Fred Kampelman, Vincent A. Chinberg, John Craig, Lawrence H. Caugh, Frank Arnold, August Beck, William Terris, Jay Quigley, George T. Higgins, William H. Putnam, Victor E. Rhodes and Charles F. Starck.

## GEORGE N. McALARNEY.

These pictures are used to illustrate the growth of the business started May 1, 1897, by George N. McAlarney, of Wilkes-Barre, Pa., on Horton street, between the Sanson File Works and the Wyoming Cutlery Co., which is now occupied by the Wyoming Cutlery Co.'s new factory. The sewer pipe yard was removed ten years ago to the present spacious quarters located at 57-65 Waller street, along the main line of the Pennsylvania railroad, with a spur leading into the yard, having a switch capacity of ten cars. Since the opening of sewer pipe business thirteen years ago there have been added a full line of builders' supplies, fire brick, paving and face brick, wall plaster, plaster board, etc., being the representative of the American Cement Co.'s old reliable "Giant" brand of Portland cement used in the construction of the New York subways, Hudson River tunnels, the Pennsylvania railroad tunnels under the Hudson River from New York to

VIEW OF GEORGE McALARNEY'S YARDS.

Brooklyn. He also handles the celebrated brand of "Atlas" Portland cement used in the construction of the Panama canal, as well as the majority of the heavy cement work in the larger cities of the country; they manufacture and sell 45,000 barrels per day. These cements are now being used extensively in Wilkes-Barre and surrounding towns by the most reliable contractors in the construction of new and modern work, including the finest buildings built under modern ideas.

Among the many are: Luzerne County Trust Company's new bank building, the First National Bank's new building on Public Square, the Lehigh & Wilkes-Barre Coal Company's new and modern office building, the new addition to Stegmaier Brewing Company's brewery, tunnels and bottling department, the new addition to the North Wilkes-Barre Lace Mills, the new building of the Mercy Hospital, the new City High School on North Washington street; also the new City School on Dana street, the Wilkes-Barre Gas & Electric Company's water power tunnel under the Susquehanna river and in foundations for their new and improved electrical machinery now being installed by them at North Wilkes-Barre.

Since Mr. McAlarney started in business he found terra cotta pipe could be used in conveying wet coal in washeries; he now has what is called McAlarney's wet coal channel, an idea of his own, which has proven very successful. It is now used

VIEW OF GEORGE McALARNEY'S YARDS.

extensively by the Kingston Coal Co. in all their modern improvements, the Susquehanna Coal Co. in all their wet coal operations and by several of the other coal companies. He enjoys the confidence of the architects and city engineers, in furnishing first-class material, either in the construction of terra cotta pipe or in the use of cement or other material, having furnished all the large contracts where sewer pipe and cement are used in the valley.

Mr. McAlarney is an active member of the Board of Trade, and on their special Solomon's creek committee.—Board of Trade Journal.

The Crushed Rock & Concrete Company, of Kansas City, has been incorporated in that city with a capital stock of $50,000.00. The incorporators were W. H. Caffrey, C. A. Roe and R. L. Caffrey.

Contract Company, Evansville, Ind. Capital, $10,000.00. General contractors for construction work. Incorporators, Coleman Jones, E. J. Avis and B. C. Hubbard.

## THE A. E. PRUESS CO.

LaSalle, Ill., March 21.—The A. E. Pruess Company, of LaSalle, with a capital stock of $6,000,00, is a new concern which will deal in all kinds of building materials except lumber, featuring sand, gravel, lime, cement brick and sewer pipe. The members of the new concern are A. E. Pruess, of Utica, and G. A. Qilson, Jr., and Attorney Thomas F. Doyle, of LaSalle. Plans for a warehouse a block wide and two blocks long were made by Architect V. A. Matteson, and construction will be completed as soon as possible, probably on a site near the Rock Island depot, accessible for heavy shipments.

## CLEVELAND RETAILERS.

Cleveland, O., March 17.—Business with the retailers in Cleveland and vicinity is beginning to pick up, with the advent of the building season. Indications point to a very busy spring and summer and already the retailers are filling up their warehouses in different parts of the city with stocks for spring consumption.

One of the most interesting announcements of the past month has been the merging of the W. F. Fay Building Supply Company with the retail supply department of the Cleveland & Pittsburg Coal Company. The latter has had its headquarters at Euclid avenue and East Fifty-fifth street, while the Fay Company has been located on the thirteenth floor of the Schofield Building. The merged concerns have been incorporated under the name of the Cuyahoga Builders' Supply Company, with offices in the Schofield Building. A general building supply business will be conducted by the new company. W. F. Fay has been chosen general manager of the new company. Mr. Fay started as manager of the Masons' Supply Company, which was absorbed by the Cleveland Builders' Supply Company. He became manager of the latter company, only to later sever his connection and go with the Lake Erie Builders' Supply Company. Later he formed the company bearing his own name.

At the office of the Cleveland Builders' Supply Company it was stated that business is picking up and that in another month the big rush will be on. There will be a big season for cement and other fireproofing materials in this city, as more building of this character is being undertaken this year than ever before in the history of the city. The company is preparing to take care of a large volume of business, which its many warehouses will enable it to do.

The Lake Erie Building Supply Company has had a busy winter, according to its officers, and looks forward to an exceptionally good spring and summer season. The company has some good cement agencies which it is pushing. Already a number of good orders have been signed up for early delivery.

## ST. LOUIS RETAILERS.

St. Louis, March 17.—A canvass of the dealers in building materials indicates that the season is now on in earnest. The city of St. Louis, in carrying out an extensive plan of improvement in streets, sewers and sidewalks, together with various new buildings, is a great source of business for contractors. The street railway company and the steam railroads are also carrying out extensive plans for improvement and extension of facilities.

"We are getting busier every week," said F. P. Hunkins, of Hunkins-Willis Lime & Cement Company. "The demand for lime, cement, plaster, sand and gravel is first rate and we expect to have all the business we can handily take care of. Our trade for last month was double what it was in February last year, partly, doubtless, owing to favorable weather conditions which prevailed. Prices on building material are firm, in fact tending upward."

The Contracting & Supply Company, of St. Louis, state that since March 1 business has opened up in good shape for all kinds of building material. "The contractors who are interested as stockholders in our company are securing jobs each week. Our Cliffdale plant is busy turning out lime for which the demand increases right along, now that the weather is suitable for plastering."

"Has business been good?" replied Manager McDonald, of the Independent Lime & Cement Company. "Well, I should say yes, and will leave it to THE ROCK PRODUCTS man to pass upon when I state that during February we worked our teams every day—sixteen of them—and hired others besides. Having gotten a good start, we expect to keep things moving right along clear through the building season. They are building factories in this section of the town and, besides the plants, they have to have men and the men have to have houses to live in. If you look well after your business it's bound to increase."

# NEW JERSEY.

## Mason Material Dealers Hold Annual Convention and Banquet at the Manhattan Hotel, New York—Splendid Showing and Real Results.

The Mason Material Dealers of New Jersey, one of the livest organizations of its kind in this country and one of the few organizations that can point with pride to a long list of achievements, held their usual annual convention at the Manhattan Hotel, New York, on Thursday, March 9. It was by far the most largely attended meeting held for some time. The reports of the various officers and committees showed that the association was doing a great work. Applications for membership indicated that the association is growing in size as well as in importance.

The first paper was entitled "The House of Bricks, Its Cost and Value," by J. Parker B. Fiske, of Fiske Bros., New York. This was a decidedly interesting and instructive paper and very comprehensive.

"Hollow Tile" by W. J. Burke, of the Great Eastern Clay Company, brought out the manifold advantages of the hollow tile in construction work and urged the dealers to carry a stock of them.

Edward D. Boyer, the cement expert of the Atlas Portland Cement Company, read a paper on "The Proper Use of Portland Cement."

### THE PROPER USE OF PORTLAND CEMENT

By Edward D. Boyer, Cement Expert, Atlas Portland Cement Company.

As mason material dealers, I feel that it will be hardly necessary for me to discuss with you either the processes of the manufacture of Portland cement or the quality of the material.

Regarding the former you are probably as well informed as myself, and regarding the latter, I believe you know and feel that while most Portland cement manufactured today will pass the average specification or the specifications of the American Society for Testing Materials, there are different degrees of quality in these cements, and a sufficiently marked difference between an ordinary and a high grade Portland cement to manifest itself in the finished work, particularly after the work has been in place for a considerable period of time.

I believe you appreciate and know the vast sums of money expended in the perfecting of its quality, stimulated by the growing, ever-increasing demand for it by builders all over the world. I therefore choose to discuss with you (probably from the negative point of view) the proper use of this material that has been developed and fast reaching perfection in little more than one decade, so that it is fast replacing every known building material, with fair promise of superseding them all.

Cement is a wonderful building material, adapting itself to all forms of construction, and the ease with which it can be manipulated is probably one of the causes of its frequent abuse. The proper care of the material while in your storehouses should be your first consideration. Cement has a wonderful affinity for water, literally sucking it from the atmosphere. For this reason dry, well ventilated houses should be your aim, and careful attention given to the storage of the material. The sacks should not be tiered over ten high to avoid the compression on the lower sacks from excessive weight. Kept in storage for a period of time, it is bound to cake more or less, dependent upon the conditions surrounding it, as, in locations adjacent to water the dampness is sure to produce the condition referred to; but this caking does not necessarily destroy or even damage the quality of the material. As a matter of fact, Portland cement properly cared for will improve as it grows older, the very action of the air referred to slaking whatever free or uncombined lime there might have been in the material when first received. So long, therefore, as the caking of the material has not reached the stage where pressure such as can be given it with a shove will again reduce it to powder, there will be no harmful results. On the contrary, bags that contain small lumps of cement that cannot be reduced to powder by the above method should be emptied and the cement reconditioned by screening, as the lumps will not dissolve in that condition in the concrete, but will produce serious, if not dangerous, results. This, then, is the first step in the proper use of cement.

The next and most important step is that of selecting the aggregates that go to make the concrete, the sand and crushed stone or gravel. They should be clean and well graded from fine to coarse, so that the finished concrete is as free from voids as possible. This, of course, brings up the question of the permeability of concrete; in other words, the much mooted question of waterproofing. I think probably the most interesting papers on this subject recently published are those that treat of waterproofing with water, an argument in favor of the free yet proper use of water in the mixing of concrete. There is no doubt that a thoroughly dense concrete, sufficiently rich in cement with the aggregates so graded that the mass is practically free from voids, is thoroughly waterproof. This concrete, placed in forms sufficiently wet so that it will puddle, should be ideal concrete, resisting water pressure—damp-proof, weatherproof and fireproof—and will not require the use of waterproofing compounds. The rise and fall of the concrete block business, particularly the fall which occurred several years ago, was a practical demonstration of the improper mixing of concrete, and particularly of the insufficient use of water to properly assist in crystallizing the cement and bonding the material. Concrete block men are today appreciating that fact and that concrete block houses will again be established as a cheap form of construction for residences there is no doubt. There is always a tendency to use too little water in the mixing of concrete, and my own opinion is that too much rather than too little be used. The only danger in the too free use of water is the liability to float away the fine particles of cement, thus somewhat weakening the concrete; while too little water will not only weaken the concrete but place it in such condition that it will eventually disintegrate.

Frost in no way attacks concrete after it has become hard set, unless the concrete is so porous that it absorbs water. This absorption and consequent freezing of the water causes the disintegration above referred to. The mixing and placing of concrete in freezing weather is done so frequently now, and few, if any, failures from this cause occurring, yet a word of caution is not amiss on this subject.

The aggregates as well as the water should be heated before mixing with the cement, and after the concrete is placed it should be carefully covered for 24 hours. Common salt, too, is frequently and successfully used to prevent freezing of concrete before it has set. This is used in proportion of about 20 pounds of salt to each barrel of water used.

In sidewalk and gutter work, where Portland cement is rapidly substituting every other form of construction, the greatest care should be taken to have the concrete properly proportioned, mixed and placed.

The increasing competition in this class of work has resulted in frequent abuses of the cement by cheapening the concrete with a too lean mixture, causing consequent abrasion of the surface of the work and ultimate rapid wearing off of this surface. The base of the walk can be a mixture as weak as 1-2½-5, but the top should never be weaker than 1 part cement to 2 parts sand, and with most sands should be one to one.

The use of boiler ash in making certain character of concrete can be commended, especially where not much weight is required. The writer knows of any number of house foundations in the towns adjacent to the large cement mills in Pennsylvania that are answering their purpose splendidly, and in fact, there

WALTER C. SCHULTZ, HOBOKEN, N. J., PRESIDENT MASON MATERIAL DEALERS OF NEW JERSEY.

are very few house foundations in that neighborhood that are not built of cinder concrete. The mixture is one part of Portland cement and five parts of clean ash, and the walls are cheaper and better than stone or brick and have many advantages over the old form of foundation.

The uses of Portland cement have become so varied that to treat on each today would consume too much time, and yet I would desire to impress you with the fact that every day the uses of this material increase, probably from the simple fact that there are more people becoming familiar every day with the ease with which it can be manipulated into any conceived form, and therefore used for most any conceived purpose.

Portland cement has become so cheap in the last few years that it can compete as a building material, even with lumber, and that it is better than any known building material today is becoming more and more established in the minds of the user, and the fact that buildings erected with this material are everlasting and require practically no repair will make toward a greater consumption of the material every year, and I believe it perfectly safe to predict that by the year 1914 the production of Portland cement in this country will have reached one hundred million barrels per year, which production will be greater than that of all other countries combined.

"The Bag Question" was then the subject of an open discussion.

The attendance at the meeting was over one hundred and in addition to the regular members there were present Charles Warner, Wilmington, Del., president of the National Association; H. F. Washburn, president of the Building Material Exchange, of New York City; F. D. Howland, president New York Dealers' Association; Frank H. Johnson, president Connecticut Dealers' Association; E. M. Yerkes, president Westchester County Building Material Association; D. K. Thompson, Jr., Columbus, Ohio, secretary and delegate, Ohio Builders' Supply Association.

President Schultz, speaking to the members on the general work of the association, gave his views forcefully on the subject of "Credits, Association Work, Costs Systems," giving much credit to Charles Warner, president of the National Building Supply Association, on his work and the articles advancing these ideas. President Schultz is in favor of the individual members of the New Jersey association affiliating themselves with the National association. He deprecated the taking of business by cutting prices and recommended to the dealers the fair treatment of the manufacturers. After these remarks there was a general discussion on car demurrage and the bunching of cars by the railroads.

This meeting adjourned at 3 p. m.

## EXECUTIVE SESSION.

President Walter C. Shultz opened the session with James M. Reilly, the secretary, at the recording desk. President Schultz made a few remarks on the growth of the association and its influence and complimented them upon their splendid showing. Mr. Schultz is one of the best officers the association has had and is an indefatigable worker.

The minutes of the last session were then read and approved. The roll call was omitted. Seven applications for membership were acted upon, all being elected.

The treasurer, Frank H. Genung, read the financial statement of the year, which showed a comfortable balance in the treasury.

The lien law committee placed upon the table a copy of a lien law now before the New Jersey legislature.

The board of trustees' report was read by Secretary Reilly and was as follows:

### ANNUAL REPORT OF THE BOARD OF TRUSTEES

By James M. Reilly, Secretary.

The questions to be answered today are: Have we as an organized body made progress in converving the business of handling mason materials? Have we made practical advance in curtailing the practice of direct competiton? Also, have we eliminated any of the unprofitable methods known to exist among dealers?

These questions cover the real purpose for which we have organized ourselves, and to the accomplishment of which we have contributed our best effort.

No doubt each dealer can answer in part by making a comparison with conditions which obtained in the past as compared with methods now employed, and all will admit the results of the work carried forward through our organization has undoubtedly had a beneficial effect, has helped materially and has enabled dealers to secure a better margin of profit, also, that it has made it possible to conduct business with less friction and, therefore, with greater satisfaction.

It can also be reported that through the good offices of the association it has been possible to convene meetings of dealers at local points, at which, after an exchange of views relative to unprofitable methods, ways and means for "getting together" were advanced and suggestions for a closer co-operation between dealers to take the place of aggressive competition were adopted, which have worked out to the mutual advantage of the dealer, the consumer, and the producer.

There are three elements vitally concerned in the problem of trade conditions, each having equal rights which must be given every consideration.

It would seem that the greatest interests of all rest with the greatest number, the consumer, who represents the public; and to this class must be conceded without restraint or restriction the right of purchase; and with this right belongs the privilege to decide the class, grade or quality of material, its cost, terms of sale, and delivery.

The second party concerned is the retail dealer, who, to supply the needs and wants of the consumer, invests his money in the equipment of a yard and with a knowledge gained by experience in the business assembles an assortment of materials in order to facilitate the building of the town or city where he is located, reserving for his investment labors, experience and ability of knowing how to buy the best at least cost; and for the saving of time to the buyer the right to charge a reasonable profit with the privilege also of adding a proportionate share of costs incident to the handling, storage, hauling and delivery of merchandise.

If the consuming public were compelled to depend upon the manufacturer or his agent solely, let us ask ourselves what would be the effect upon the cost and price of materials. Would it result in a lowering of prices, or would prices advance? Would it insure a higher or better grade of materials; or would it result in the sale of fraudulent or worthless stock, and tend also to a general demoralization among all classes of manufacturers?

If the retail dealer with his knowledge, ability and experience were removed as a factor, how long would the consuming public be satisfied with the unhealthy conditions which must create, and how long would the reputable manufacturer be satisfied with the class of competition that he would have to meet?

Without the practical experience and the responsibility of the dealer, what would the consuming public have to rely upon and what protection would the public have from the unscrupulous or dishonest? What remedy at law would avail? What benefit would the federal statute known as the "Sherman Act" be to the consuming public, which at this very time is being invoked by well-known scalping concerns, who would, if permitted, drive retail dealers in the various lines of trade out of business by breaking down such

organizations as this as being unlawful combinations in restraint of trade, because we have succeeded in checking their demoralizing and unprofitable competition.

The dealers' usefulness to a community has a fixed and positive value, insuring safe measures, quality and quantity; conserving time to the consumer, and performing a service of much more value than that represented by the margin of profit on the volume of business transacted annually.

When one or more consumers, be they known as contractors, manufacturers, or otherwise, complain against paying the added percentage of cost necessary to the local dealer and seek to buy supplies required for some contract job, they become open to criticism because in so doing they refuse to concede an equal advantage to competitors who are not in a position to purchase at wholesale, and they also forget to consider in their selfishness the best interests of the community in which they are located. What do they care about the convenience of the rest of the community or what the increased costs would be to have the thousand and one small wants supplied from a distant point. They are ready to tear down organizations formed upon well defined principles that aim to correct expensive abuses and which aim to build up trade and industry along lines insuring a reasonable and just compensation in return for labor and materials.

Each of the three parties concerned have, and should enjoy a distinct relationship, the producer to look after the supply, the retailer to look after its distribution, and the contractor or consumer to use where wanted; one dependent upon the other, each essential to the business, the success of one depending upon the success of the other.

Every loss from every cause is an added cost upon the ultimate consumer, who, in the end, pays the freight, therefore in conserving trade from expensive methods of selling or distributing, our trade organizations are performing a useful public service valuable to the contractor, to the public and to the dealer.

There can be no question as to the usefulness of the local dealer, both to the trade and to the community; to the one, he is the responsible security for merchandise furnished; to the other, for the standard and quality of materials furnished; and any movement which would tend to injure the retailer or to lessen his standing or responsibility must inevitably tend to injure all parties concerned, the manufacturer, the consumer and the community.

It is safe to assume that the result of the investigation referred to through the Department of Justice will conclude in exonerating associations similar to ours from any intended infraction of the Sherman Act, and that the principles underlying our work is in consonance with good trade ethics, acting as a conservative force in equalizing the rights of each of the parties interested, and actually a benefit to all concerned; and with such a decision as anticipated our associations will be stronger and more effective hereafter.

Let us now consider other matters which have occupied the attention of the officers during the past year. While it is unnecessary in this statement to enter into detail regarding various matters of complaint, the import of which has been communicated to you in bulletins issued during the year, we may well give careful thought to what action must be taken in solving the problem of trade classification.

The question as to what really constitutes a dealer in mason materials is a matter of importance to every one of us and we must find some way to convince certain manufacturers that the mere nomination of a coal dealer, or a feed dealer, as being legitimate trade to sell to in order to promote the sale of their product, is not just nor considerate; because if such a claim were allowed it might be extended until it would include any person or firm who conducts a store for the sale of any class of merchandise and make such persons equally eligible.

Your board has protested against sales through such concerns and will continue to protest until the list is revised and the names of all such parties removed. This work would have been advanced but for the reason—disturbance among manufacturers—which has made the possibility of united action uncertain.

Some few of the suggestions contained in one of the recent bulletins are pertinent and will stand for repetition. Therefore, we take this occasion to again urge on your attention the importance of "getting the preference habit." "Give your orders to those who sell to dealers only, and tell the manufacturer who competes with you that he cannot expect you to do business with him."

"If you and your neighbor don't understand each other, selling at cost won't help you." "Take the initiative, cut out the unprofitable, and your neighbor will recognize the force of good example." "Do business always on a safe margin of profit and let your neighbor see you mean it, and it is reasonably safe to say that conditions will improve to your benefit."

Now, what have you done as a member since our last annual gathering? Have you sent in any report to the secretary, giving information of any irregular sale by a wholesaler of material to a consumer in your locality? You must realize if you neglect to do this that the association is not in a position to know what is taking place; that it is for each one of you to keep the association posted, and that such reports are valuable, as they are made the basis of complaint and conference. In this work each one can contribute to the success of all, and we urge each of you to manifest a larger interest in this direction.

It is gratifying to report the steady progress being made, which is perhaps best indicated by presenting at this time a list of the new members gained during the year as follows:

### Active.

W. D. Gulick, Bound Brook Supply Co., Sheeley-Hensel Coal & Lumber Co., Passaic Builders' Supply Co., Shields-Chamberlain Co., Dumont Coal & Lumber Co., Hotchkiss & Muchmore, Ridgeway & Hobbs, John Grant's Sons, Inc., R. J. Rogers Lumber Co., W. J Donnell & Co., Perth Amboy Supply Co., I. H. Hoffman, Tattersall Co.

### Associate.

C. K. Williams & Co., Vanderhoof Lime Co., Pearl Clay Products Co., Great Eastern Clay Co., Blanc Stainless Cement Co., Niagara Gypsum Co., Arthur N. Pierson & Co., the Ohio Mining & Mfg. Co., Walton N. Cable, Sampson Plaster Board Co., Atlas M. & M Co., W. H. Watson, W. G. Hartranft Cement Co., Pfafee & Kendall, Monument Plaster Co., Samuel A. Wilson.

Every name added to our roll of active members strengthens and adds to the influence of the association; while the co-operation of associate members adds a value to the business of each dealer in the protection afforded, as well as the influence represented, upon other manufacturers as to the necessity of conforming with trade rules.

At the last annual meeting our roll contained the names of 109 active members; we now have 122, our list of associate members number 47; this has been increased to 57. We have lost by resignation one active and two associate members; three associate members were dropped for non-payment of dues; two applications for active membership were rejected, the parties not being considered eligible. There is one weak spot to be found in our organization, and that is found in the fact that we have fifteen active members on the roll who have failed to pay their annual dues; also five associate members. Let us hope that these parties will appreciate the benefit they are receiving and not make it necessary for the board to order their names dropped for non-payment during the coming year.

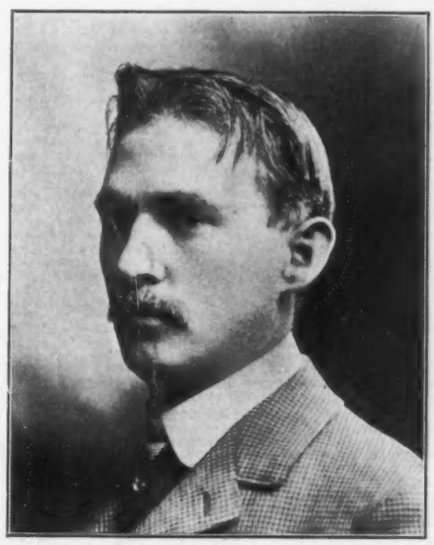
We would report that in the handling of all matters of complaint, the object of your board has been to follow a conservative course and through conference secure a remedy without creating friction, thereby securing to the dealers the greatest amount of good will and friendship.

In all respects it can be said that these efforts have been successful and that we have made good progress, and that progress has also been made in bringing dealers together at different points.

It is the earnest wish and hope of the board that the membership will continue to be loyal to the association in its work because the future is not altogether free of disturbance, and because there are many questions to be worked out which can only be settled through a combination of influence exerted individually and collectively.

In closing this summary let us urge the importance of securing the enrollment of those dealers who have as yet failed to take up membership. This is a very important work which each one should assist in whenever possible.

We acknowledge with our best thanks the valued co-operation of our associate members, and we urge



JAMES M. REILLY, SECRETARY MASON MATERIAL DEALERS OF NEW JERSEY.

you all to show your appreciation of their support by living up to the motto we have chosen and as practical men to return for benefit conferred a like benefit.

The committee on nominations brought in its report, which was as follows. All were elected:

President, Walter C. Schultz, Hoboken.

Vice-presidents, Charles Agnew, Paterson; U. F. Washburn, Jersey City.

Treasurer, Frank H. Genung, Newark.

Secretary, James M. Reilly, Newark.

Advisory board, Charles W. Ennis, Morristown; George W. Tompkins, Newark.

Board of trustees, vacancy term of two years, H. A. Todd, Plainfield.

Vacancy term of three years, F. W. Veghte, Roselle; George A. Smock, Asbury Park; Edwin Demarest, Tenafly; J. R. Rolfe, New Brunswick; Henry N. Sayre, Newark; Edwin Taylor, Elizabeth.

## OPEN SESSION.

At 3:15 o'clock the association went into open session, for both active and associate members. The first talk was that of Fred P. Kafka, president of the Herringbone Metal Lath Company, of New York. He discussed the subject from the commercial standpoint as appealing more particularly to the mason material dealers. He analyzed the conditions which were influential in bringing about the substitution of steel for wood and timber, not only in construction, but in all kinds of articles and implements. Touching on the growing scarcity of lumber and its gradual increase in cost, he contrasted it with the improved method in making steel. He said that metal lath was far superior to wood lath, saying that metal lath was fireproof, more sanitary and vermin proof, affording a better key for the plaster, besides not shrinking and swelling from the absorption of moisture as wooden lath does.

Walter S. Sheldon then read a paper on the subject of lime, which was listened to with much interest by all those present.

### LIME

**By Walter S. Sheldon.**

In responding to your invitation to address you as a representative of one of the great materials so intimately connected with your business, I have naturally desired to bring you something which would be of interest and possible value. A merely technical article relating to lime would be covering ground already elaborated by those who can speak with more authority than myself. It would be impossible to suggest to you in connection with this material the details of your every-day experience and practice in handling masons' materials, but there is one feature of our mutual relations which I believe merits our better understanding. As the great lens of the telescope gathers together the separate rays of light and bends and blends them together until before the observer's eye appears the clear image of the distant star, so a possible viewpoint different from that of your every-day relation to the business world may help to make clear the complex relation in which we stand, and which we call "business."

I have had the pleasure of attending your association meetings for the past six years, and in that time have heard the subject of co-operation as applied to your business very ably expounded, and your association is to be congratulated upon having achieved so much of success along the lines of co-operation. What the financial results of this association have been to you personally you alone can tell, but to the associate member such results are less obvious, and as the primary purpose of all business is a profit from services rendered, I am going to suggest the consideration of another word in the place of co-operation, believing as I do that the largest measure of increase in the profitable conduct of your business lies not in the technique of your profession, not in the completeness or economy of your methods of yard operation, but in going a step beyond the idea of co-operation in the development of your business and accepting the word CO-ORDINATION as one which points the way to the fullest realization of your ambitions.

As I have said, I have heard co-operation extolled at your meetings in many forms, but I beg to point to the old dictionary definition of co-operation, which is simply a working together of men or motives toward a common end. This includes the weak working with the strong, the smaller with the greater; but if you will turn to the same source of authority you will find that co-ordination means the working together toward a common object of men or motives of equal rank or value.

Using my subject lime as an illustration: I desire to purchase a barrel of lime. Somewhere there is a manufacturer who, anticipating such a desire, has equipped himself to produce that article. Neither party can have any knowledge whatsoever of the existence, location or mutual desire, and before mutual satisfaction can come to pass these two parties to the possible transaction must be brought together. Nothing can be done without these two men and they are therefore co-ordinate forces of equal rank or value, whose operations tend toward the consummation of a certain act which we call "business."

In your line or business you are fortunate that the kind and character of the goods you handle and the trade you supply make it practically impossible for this would-be purchaser and the manufacturer to come together and act directly upon each other, except in special cases. Therefore, there is required an agent or middleman, in this case the Masons' Material Dealer, through whom these two parties must act, and who, by that relation, acquires an equal importance, rank and value, becoming thereby a co-ordinate factor in the consummation of this class of business.

It is natural that each should think of his business as being of the utmost importance, and yet, is it not true that the manufacturer serves the consumer and not you as masons' material men, while the consumer is anxious, not primarily to trade with you, but to procure certain material supplied by the manufacturer?

Therefore, if we accept this theory of the co-ordinate factors in the transaction of our particular business, no one of these factors can be eliminated, and no one can claim pre-eminence over the others.

The manufacturer produces his goods for the ultimate consumer, and the passage of those goods through the various channels of trade and through different hands interests him only as they furnish a market for his output at a price which returns a profit for the service rendered, and it is a part of his scheme of things that his goods must be produced at a price which will allow their marketing not only with a profit to himself but to those through whom the goods are finally delivered to the ultimate consumer, and he therefore has a very definite, though indirect, interest in the price of a barrel of lime, for instance, delivered to that consumer, and to say that the associate members of this organization are indifferent to the retail price of mason material supplies is very far from the attitude of far-seeing men.

The consumer, on the other hand, does not obtain a direct profit upon his transaction with you in buying a barrel of lime, but he does have as great an interest in an indirect profit as the manufacturer has in the same transaction. The consumer's profit in his transactions with you results from his satisfaction with your service, with the quality of the goods of whatever kind he obtains from you, and with their peculiar fitness and applicability to the purpose intended. In building a house his profit arises not from the price at which he purchases the material, but from the quality, durability and general excellence of construction which he is able to effect thereby.

It is, therefore, an incomplete statement to say that the relation between the producer and the consumer is merely one of bargain and sale, as there are two distinct functions of equal importance one to the other, and two distinct satisfactions or profits, each independent and yet dependent upon one transaction.

Your position stands midway between these two, and although it is that of a middleman, it is in no

BANQUET OF THE MASON MATERIAL DEALERS' ASSOCIATION OF NEW JERSEY AT MANHATTAN HOTEL, NEW YORK.

way less important than the others, because in your hands the manufacturer leaves the question of the marketing and valuation of his goods and the consumer comes to you and expects from you not only value for his money, but, as you well know, your advice in regard to material, their quality and durability, with which, in the nature of things, he is unfamiliar, and upon which you must advise him.

In but few cases do you ever find, in your dealing with the consumer, that price is the only consideration in securing the order, and it lies in your hands almost wholly to give to the purchaser the satisfaction or profit which he expects from the investment of his money.

Consequently, in your outlook upon business, you are not simply an agent, but you are an equal and co-ordinate factor working with the producer and the consumer toward the one object of our business.

I am speaking impersonally and not alone for lime but for all other building material represented here, when I say to you that you cannot afford to handle other than standard and reliable goods that will measure up to the requirements they profess. There is fortunately little temptation to this in the line of goods you handle, and yet your reputation, as well as that of the manufacturer, is bound up in the quality of the goods you sell, and while it is often true that failures result from using materials unadvisedly for work which they were not calculated to perform, you cannot scrutinize too closely the brands you place before your customer, and having found the goods which satisfy your requirements, nothing less should answer. The manufacturer under such a course of treatment will very speedily exhaust his ingenuity in bringing his goods up to average standard established by your trade, and any lapse therefrom is sure to bring its prompt and automatic penalty.

You do not need to be told that the price of goods is only one of the many factors to be considered and that your relation with the manufacturer is one not of antagonism but of the closest unity. How many times are you approached with questions regarding the goods you handle? These questions it is impossible for the manufacturer to answer direct and it is therefore up to you to know the goods you handle and the particular uses and purposes for which they are best adapted. You are busy men, it is true, and yet it is not too difficult to keep fully posted upon materials, and the manufacturer would be only too glad to assist you in every way to an understanding of the goods he places in your hands, and on the part of the consumer there is no one else to whom he can go who should be so well qualified as yourselves to inform him.

I am not exaggerating the situation when I say that your efforts at co-operation among yourselves should tend to steady and maintain your quotations on materials to your customers, but too often the business is obtained upon the narrow consideration of a few cents' cost one way or another between yourselves, and thereby you are really sacrificing to the exigency of the moment and the desire to "do business" the interests which have been entrusted to you by the manufacturer and the confidence which the consumer necessarily must place with you.

It is practically impossible for the manufacturer to fix, in your line of goods, the retail price; and yet upon that retail price is predicated not only your own profits but the manufacturer's as well, and unless you keep this steadily in mind you are not fulfilling your function as one of the co-ordinate factors in the operation. I do not advocate unrestricted high prices and no manufacturer expects that such prices will be charged as will check the volume of his sales through you, but the manufacturer does look to you for such marketing as will avoid unreasoning and unreasonable competition, by which is sacrificed your fair return and his whole profit. You cannot expect to indulge in unlimited competition among yourselves on the one hand for your natural market the consumer, and upon the other hand expect the manufacturer to supply you with your entire profit, because the manufacturer is required to invest many thousand dollars in his business in order to effect a very small reduction in the cost of production, and there is strictly a limit to the extent to which he can go to cut down the cost. Therefore, it is not fair to expect the manufacturer of any line of goods to continue indefinitely to reduce the price at which you buy his material, while you overlook entirely the fact that the consumer's profit on every sale from you is not the cash that he pays you but the kind and quality of the service which you render him. A fair price to the consumer is expected, and the only guide as to the fairness of your quotation is, in railroad parlance, that it "moves the goods," provided always that there is a reasonable restriction on excessive competition among yourselves.

Economic laws fortunately balance and adjust the conditions of trade. Too high a price on any commodity defeats its own purpose by diminishing or limiting the market. Too low a price on the other hand is equally pernicious, as it invites excessive competition, a destruction of capital and unnecessary tension between all three of the co-ordinate factors in the masons' material trade.

My plea today is that you consider yourselves not as an independent entity, extracting from the consumer a price based not on the value of the goods but on the stress of competition and from the manufacturer expecting quotations which have no relation to the value of the goods offered, but solely a temptation to obtain business regardless of the margin of profit or the consequences which such a disregard entails.

The reasonableness of all things can be ascertained by patient inquiry, and you have the situation so largely in your hands to make for the good of both consumer, producer and yourselves that I am urging upon your attention this co-ordination of effort, which tends not only to the production of business but to a suitable return to each one of us, and thereby extending and enlarging for all the market the good-will and the confidence of the inter-related factors. Make your customer your client in the best sense of the word. Sell him what you honestly believe to be the best material for the money and the best adapted to his particular needs, but equally make the manufacturer your friend and co-worker by keeping before you the fact that your profits arise from your transaction with the consumer, and not wholly on the side of your purchases from the manufacturer. Competition will take care of the average level of quotation, but when you are dealing in one of the necessities of civilization, of which building material surely is one, you are squandering not only your opportunity but the material wealth of the nation, and doing no one any good thereby, if you do not maintain on your part a fair price for the material you offer, and from the manufacturer insist upon the quality and character of goods which shall assure to the customer through your hands the ultimate satisfaction which arises from a fair bargain at a fair price.

W. A. Dunlap, secretary of the Osborne & Marsellis Company, Upper Montclair, N. J., submitted a copy of their demurrage record book. He said in explanation of the same:

"We have found that by keeping a record of the movement of all our cars we can more readily substantiate any claim for demurrage which we make.

"We have tried to cover everything on which a demurrage refund can be made. For instance, by having a record of the date of shipment and from what point shipment is made, together with the time of arrival of the cars, a claim for bunching can be proved. The column 'constructively placed' refers to the time that notice of such placing is received from the railroad agent.

"The question of a weather record is very necessary; also whether or not proper drill service was given. All these things have a bearing on claims.

"The railroad companies are ready to allow proper claims and where the agents' records are not clear the record kept by the dealer or shipper will usually be accepted as evidence of the fairness of a claim.

"The form will prove of value to any dealer who may wish to take up a system of demurrage records."

### The Annual Banquet.

The banquet was attended by over three hundred members and their friends. A feature of the evening was the presentation to President Schultz of a handsome grandfather's clock, as a tribute by the members, of their appreciation of his efficient and forceful conduct of the association affairs.

THE MENU.

Canape Assortis

White Rock
Narragansett Bay Oysters

Sherry
Clear Mock Turtle
Olives Celery Salted Nuts

Planked Shad, Manhattan Vin de Graves
Cucumbers

Champagne
Saddle of Spring Lamb Punch
New Green Peas Stuffed Tomatoes
Potatoes Fondante

Pall Mall
Maraschino Punch Cigarettes

Roast Stuffed Jumbo Squab, Jelly
Salad Imperial

Fancy Forms Ice Cream Cigars
Assorted Cakes
Cheese Coffee

G. H. Mumm's Extra Dry
A la Carte

The toasts were as follows:

"The Charm of Music," Howard Pascal, Newark, N. J.

"Trade Issues," Hon. C. E. Littlefield, New York City.

"Salesmanship," J. D. Kenyon, vice-president Sheldon School, New York.

### SALESMANSHIP.

**By J. D. Kenyon.**

A firm may have the very best of financial connections and standing, and it may have strictly up-to-date systems and methods of expediting and economizing the work in all departments, and yet be a failure entirely, or have failed to achieve the large measure of success which should have been theirs. The reason for this is that in final analysis all achievement in business or anything else is dependent upon efficiency of the individual.

A corporation or firm is simply a blending of individuals, all of whom are working to the same end—the object being to dispose of goods or service for a profit. There can be no lasting business unless the goods or service which is being disposed of is of such a nature that it really serves the people to their advantage. In reality the thing that is being sold is

primarily that of service, and the things from which the company demands its profits is the combined ability of all the individuals comprising the institution to serve acceptably.

Water can rise no higher than its source, nor will an institution rise any higher than the efficiency of the men who are at the head of same, and, on the other hand, be they ever so able, they cannot succeed unless those who are under them are also reasonably efficient. Anything that would tend to elevate the efficiency of an institution, or its power to serve (from the office boy to the president), would naturally, therefore, seem to be the most necessary factor in the problem of success, and while money with which to do things is necessary, and methods of doing things properly are necessary, the foundation of it all rests upon the development or education of the individual in the various departments of business, and I believe that that is the most important problem that is confronting the commercial world.

The school systems so far have failed in the proper preparation of business men and women for efficiency of a high grade. It is not due so much to the things that are taught and the method of teaching as it is to the things they are not taught—the result being that very few individuals ever learn to understand themselves, or people, or the fundamental principles of business.

Education means to educt—draw out. True education means the drawing out or development of the all-round man. You cannot have a truly educated individual unless he is developed as a four-square man. By that I mean he needs to be trained to think properly, he needs to have his emotional nature properly trained, he needs to have the body trained, and he needs to have his will power properly trained.

In order to train the intellect, or thinking part of the mind, such faculties as observation, memory, reason, judgment, concentration and imagination need to be specifically cultivated to a higher degree—the result of that being Ability.

In order to have the emotions developed, there should be specific training of such faculties as faith, ambition, enthusiasm, courage, love and loyalty—the product of which is Reliability.

In order to have the body trained, one should develop strength, symmetry, activity, industry—the product of which will be Endurance.

In order to develop the will power, there must be specific training of the faculties of decision, initiative, perserverance, etc., and the product of training is Action.

There you have the four-square man—Ability, Reliability, Endurance and Action—the first letter of these four words spelling AREA, or the AREA of the man.

Let us look for just a moment at the reverse side of the picture, and we will find that errors of omission and commission make supervision necessary and decrease—WHAT?

Errors of omission and commission are all traceable to negatives that exist in all of us—such negatives as heedlessness, forgetfulness, dullness, unreasonableness, doubt, fear, disloyalty, hate and procrastination, which are the primary causes of lack of efficiency and results.

"Yes," you might say, "that all sounds very good, but how can we as employers develop them?" I frankly say that you as employers cannot do it. No one can develop another, but he can show another how he can do it himself. You know that every normal man possesses the same set of muscles and nerves that any other normal man does, although they are in a different state of development, and you also know that they can be developed to a marked degree by the proper method of nourishment, exercise, breathing, etc.

The analogy is perfectly true as far as the mind is concerned. Every normal man possesses the same faculties, and the proper system of nourishment and exercise would develop any or all of the factulties of the man. It simply resolves itself into the question of a method that will enable the individual to analyze himself so that he knows where he is weak and where he is strong, which will inspire him to do greater things, and to develop himself, and which will point out to him specifically how he can train himself every day as he proceeds with his daily work.

An individual who is working along these lines commences to become a truly educated person because he is developing within himself the power to not only acquire the knowledge which will make for his greater usefulness, but his power to execute that knowledge in a way that will bring effective results and therefore increase his value.

The next step in the proper education of the individual should be a method to analyze and understand human nature. Then he should have a more thorough knowledge of his work. If he be a salesman, then that knowledge should be first how to thoroughly understand the thing which he is to sell so as to get at the very best points that would appeal to the mind of the customer; to present those points in a logical order, and clothe them with the right kind of language and expression, and in the right kind of manner. The next thing that he needs to understand is that he must create the proper mental effects in the mind of the prospective purchaser so as to attract favorable attention, arouse interest, create desire and bring around a favorable decision and action in such a way that the purchaser remains a satisfied customer—in other words, he needs a knowledge of the fundamental principles of business psychology because the things that he deals with are the minds of people, and he must know how to present his points so as not to over-talk or under-talk his man. He should also know that the modern salesman should be a business builder, as well as a business getter, and be in a position to offer suggestions of helpfulness in various ways to his customers; consequently a knowledge of the principles of advertising, cost, system, buying, window display, and of legal points is of great importance to him.

The reason that most people do not accomplish more is because they do not attempt more. The reason that they do not attempt more is because of ignorance—ignorance of self, ignorance of people, ignorance of their work. Ignorance is the bedrock of failure.

"Labor Problems of the Times," John Kirby, Jr., Dayton, O., president National Association of Manufacturers.

"Superstruction," Rev. John McDowell, Newark, N. J.

## THE ATTENDANCE.

Buchanan & Smock Lumber Co., Asbury Park, N. J.
Hopping, McHenry & Frost, Atlantic Highlands.
Consumers' Coal & Supply Co., Asbury Park.
James Brady's Sons' Co., Bayoone.
Conkling Lumber Co., Bernardsville.
Ogden & Cadmus, Bloomfield.
Felter Coal & Lumber Co., Bogota.
Henry Salmon & Sons, Boonton.
Edward Riggs, Jr., Burlington.
L. D. Cook & Co., Bound Brook.
Bound Brook Supply Co., Bound Brook.
Cook & Haigh, Caldwell.
Slayback-Van Order Co., Caldwell.
John J. Demarset, Closter.
Cresskill Lumber Co., Cresskill.
The Park Union Lumber Co., Dover.
Dunellen Lumber & Stone Co., Dunellen.
Dumont Coal & Lumber Co., Dumont.
T. F. & H. C. Sayre, Elizabeth.
J. & S. S. Thompson, Elizabeth.
Neureiter & Hoore, Elizabeth.
Mulford Coal & Lumber Co., Elizabeth.
Geo. H. Payson, Englewood.
Tuttle Bros., Englewood.
The Prentice Co., Englewood.
James T. Pierson & Co., East Orange.
Otto Meyer, Edgewater.
Gerritsen & Stewart Lumber Co., Garfield.
Ellis Tiger Co., Gladstone.
August Thiel, Guttenberg.
Hackensack Coal & Lumber Co., Hackensack.
Shields-Chamberlain Co., Hackettstown.
Chas. S. Shultz & Son, Hoboken.
E. D. Vanderbilt & Co., Hoboken.
Lehigh Coal & Supply Co., Hoboken.
Trost & Hinternhoff, Hoboken.
Van Keuren & Son, Harrison.
Perrine & Buckelew, Jamesburg.
J. P. Hall, Inc., Jersey City.
Edward W. Conlon, Jersey City.
O'Neill Lumber Co., Jersey City.
Washburn Bros., Jersey City.
Stone Bros., Jersey City.
John Grant's Son, Inc., Lakewood.
Davis-Smith Lumber & Coal Co., Long Branch.
George G. Salmon, Maplewood.
C. W. Ennis & Co., Morristown.
Kenvil Lumber & Stone Co., Mine Hill.
Green & Pierson, Madison.
Wm. O. Persons, Montclair.
Wolf, Stewart & Co., Newark.
Cock & Genung, Newark.
Builders' Material Supply Co., Newark.
Tomkins Bros., Newark.
Geo. F. Perry, Newark.
Frederick Bowden, Newark.
Chas. E. Townley, Newark.
H. B. Salmon Co., Newark.
Rolfe Material & Supply Co., New Brunswick.
E. G. Brown, Newfoundland.
Cooper & Demarset, New Milford.
Parkyn & Son, Palisades Park.
S. M. Birch Lumber Co., Passaic.
Anderson Lumber Co., Passaic.
Campbell, Morrell & Co., Passaic.
Passaic Builders' Supply Co., Passaic.
Sheely-Hensel Lumber & Coal Co., Passaic.
John Agnew, Paterson.
E. M. Rodrock, Paterson.
Boice, Runyon & Co., Plainfield.
J. D. Loizeaux Lumber Co., Plainfield.
Tattersall Company.
R. F. Oram & Co., Port Oram.
Amos G. Bolton, Perth Amboy.
Thos. Langan Lumber Co., Perth Amboy.
S. F. Gerlufsen & Co., Perth Amboy.
R. J. Rogers Lumber Co., Perth Amboy.
Pittner, Fitzpatrick & Co., Rahway.
Brewster & Son, Ridgefield Park.
E. S. Carr, Ridgefield Park.
Isaac E. Hutton, Ridgewood.
A. Z. Bogert & Bro., River Edge.
Bachman-Veghte Co., Roselle.
Ridgway & Hobbs, Roselle Park.
T. B. Miller & Co., Summit.
Stephens Bros., Summit.
Hotchkiss & Muchmore, Summit.
Sargeant Bros., Somerville.
Smith-Shoonmaker Co., Somerville.
H. B. Halsey & Co., South Orange.
N. W. Clayton, South River.
Edwin Demarset, Tenafly.
Osborne & Marsellis Co., Upper Montclair.
Kimball, Prince & Co., Vineland.
Tuttle Bros., Westfield.
Raphael A. Capone, West Hoboken.
Thomas Henry, Weehawken.
J. S. Irving Co., Westfield.
Oscar L. Johnson, Rockville, Md.

### Associate Members.

Ohio Mining & Mfg. Co., 96 Wall St., New York.
Pearl Clay Products Co., Bradford, Pa.
Tuna Valley Pressed Brick Co., Bradford, Pa.
Alpha Portland Cement Co., Easton, Pa.
Blanc Stainless Cement Co., Allentown, Pa.
Bath Portland Cement Co., Bath, Pa.
Comstock Lime & Cement Co., 39 Cortlandt St., New York.
Wm. G. Hartranft Cement Co., Philadelphia, Pa.
Hiram Snyder & Co., 261 Broadway, New York.
Palmer Lime & Cement Co., 149 Broadway, New York.
Chas. Warner Co., Wilmington, Del.
Homan & Puddington, 81 New St., New York.
Shephard & Morse Lumber Co., 17 West 42nd St., New York, N. Y.
Simpson, Clapp & Co., 17 State St., New York.
J. M. Sutton, 39 South St., New York.
F. H. Boyd N. England Lime Co., 285 South St., New York.
Farnam-Cheshire Lime Co., 39 Cortlandt St., New York.
Vanderhoof Lime Co., Hamburg, N. J.
Rockland-Rockport Lime Co., Fuller Bldg., New York.
The Kelley Island & Transport Co., 1133 Broadway, New York.
The Woodville White Lime Co., Toledo, Ohio.
The Wm. N. Hoag Co., 105 W. 40th St., New York.
New Jersey Lime Co., Hamburg, N. J.
The Atlas M. & M. Co., Lincoln, N. J.
James B. McNeal & Co., Baltimore, Md.
J. B. King & Co., 17 State St., New York.
Clifford L. Miller & Co., 110 E. 23rd St., New York.
Frank E. Morse Co., New York.
N. J. Adamant Co., Harrison, N. J.
Rock Plaster Co. of N. Y. & N. J., 1 Madison Av., New York.
U. S. Gypsum Co., 1170 Broadway, New York.
Wotherspoon Plaster Mills, Inc., 1170 Broadway, New York.
Niagara Gypsum Co., Buffalo, N. Y.
Sampson Plaster Board Co., Passaic, N. J.
American Sewer Pipe Co., Pittsburg, Pa.
Great Eastern Clay Co., South River, N. J.
Arthur N. Pierson & Co., 1 Park Row, New York, N. Y.
Thomas Robinson & Co., Real Estate Trust Bldg., Philadelphia.
Robinson Clay Products Co., Flatiron Bldg., New York.
H. W. Johns-Manville Co., 100 Williams St., New York, N. Y.
S. A. Wilson, Newburgh, N. Y.
Edison Portland Cement Co., New York, N. Y.

### Trade Press.

Ralph Peverley, ROCK PRODUCTS, 500, 110 West 34th St., New York.

## DEATH OF E. V. COWELL.

E. V. Cowell, the president of the Cowell Portland Cement Company, of Cowell, Cal., died March 18th at his home. Mr. Cowell was about 56 years old, and a bachelor. He was the son of Henry Cowell, who was practically the father of the lime and cement business on the Coast. Henry Cowell went to California in 1848. He was the father of two sons and two daughters. Henry Cowell left a fortune valued at $45,000,000. A part of it consisted of 48,000 acres of land in California. It is said that the Cowells paid in every county but one. The elder Cowell died some time ago. E. V. Cowell leaves a brother, Henry Cowell, and two sisters. E. V. Cowell did much to develop the lime and cement business on the Coast. He was possessed of great executive ability. He graduated from the University of California with high honors. He made several bequests to his Alma Mater. He was noted for his many charities. He was a man of strong personality, fearless character, and wonderful probity. Mr. Cowell thought a great deal of ROCK PRODUCTS. He would wait for each issue of the paper. One day when asked why he was waiting he replied, "I am waiting for ROCK PRODUCTS to see what's doing."

## "OLD RELIABLE" PLASTER.

The Kellam & Shaffer Company, of Schenectady, N. Y., have recently erected and installed a complete hard wall plaster plant, which is now running full force manufacturing "Old Reliable" hard wall plaster. At the present time their output is a car per day. This plant is modern in its equipment and the material has fully come up to all expectations.

The Metal Rib Plaster Board Company, of Huntington, has been incorporated at Albany, N. Y., with a capital stock of $100,000.00. The incorporators were Frederick L. Kane, F. L. Kane, Jr., and William S. Babcock, of Huntington.

Miners employed in the mine of the Plymouth Gypsum Company, Fort Dodge, Ia., found nearly a cord of wood buried ninety feet in the ground where gypsum is being mined. The wood had begun to petrify in spots, but was in good condition otherwise.

W. A. Dow, the well known concrete block expert, who has been in Argentina for more than a year, was a recent caller. He came back to this country to assist his brother, Wallace L. Dow, of Sioux Falls, to build a very heavy machine for casting mouldings and special patterns of concrete to be used in veneering the fronts of large buildings. Mr. Dow returns to Buenos Aires by the next ship, and will be actively engaged in concrete work the balance of the season.

Word is received from New York that the Russell Sage Foundation has begun very extensive construction operations to make the "Spotless Town" provided for by the estate of the late philanthropist. It is to be all concrete, streets, sewers, buildings. Incidentally it is mentioned that millions of the Pauly type of concrete hollow tiles are now going in buildings of every kind.

The daily wages of plasterers in Shanghai consular district, China, averages about 20 cents a day, writes the vice-consul.

Joseph Eiff, of Quincy, Ill., received the contract for plastering the addition to St. Joseph's Home in that city for $1.947.00.

Paving of three streets in Pekin, Ill., with brick and cement filler, costing $27,000.00, is contemplated.

### MORE CO-OPERATION NEEDED.

The theory of the supply dealer who wanted to convince the editor of ROCK PRODUCTS that there is nothing in publishing a "Mud" paper because people are just selling dirt and do not get anything for it—do not make any money and do not see how anybody else could make any money—might be right if we figured on the same basis that some gypsum people take business at times.

Of course, the adoption of modern methods and the application of new mechanical devices have helped the gypsum man to do business on a different basis than formerly, but there are a lot of things he has to learn yet, and one of them is how to sell his goods. It would appear from some of the contracts we have seen as if some people in the gypsum business depend on fillers more than they do on their regular trade, notwithstanding they have a good sales force, for either some plaster manufacturers are antiquated, or others are "twenty years before their time, advance agents," for, in the present bidding in competition for a big job, a difference of 80c a ton means that it is about time for Moses with his shining light to drop down among the belligerent plaster men.

True the world is not so bad as it used to be, and conditions are not as "bum" as they were for several years, due to the ambitions of some men to sell all the goods, but there is still room for improvement, and while it would not help the plaster manufacturer or the dealer to have prices go way out of sight, it would help matters if a moderate price could be kept in force. It would be advantageous to all interests and the plasterer who has to take jobs in advance, especially the big fellows who scatter their energies all over the states, would be thankful, for with the present unstable values in plaster there is no telling how low they might go or how high they might soar.

### RAILWAY TONNAGE CHEAP.

Did it ever occur to you that there are concerns in the plaster business shipping as much as 200 cars of material a day? It must seem a sort of a joke to observe the fellow down at Podunk who stirs up the neighborhood, including the depot agent, the preacher and the mayor, when he gets in a car of plaster, and yet it takes the big and little fellow to make a full team to distribute this product.

Since it has become the style to have a plaster overcoat on your houses nowadays, it might be worth while for the plaster manufacturers to classify that business on the same basis as the steel lath man, who places one of his best salesmen in a city like Des Moines and has him proceed to get on good terms with the dealer, the architect, the contractor and the prospective consumer.

The plaster man says: "Well, I do the same thing. I have a specialist who goes out and lives with the architect." There is not individual creative work in the plaster business. They are not willing to make sacrifices now that they may get the results two or three years from now, because of a better co-operative effort.

### PLASTERED EXTERIORS.

Plastered exteriors for the better class of residences, and in fact for every kind of building, have become popular because there is at last an opportunity to express individuality of taste in decoration without enormously increasing the cost, as has been the record of the past. As a matter of fact, the modern development of plaster for exterior purposes introduces an economy instead of costing more. Art and personal selection in matters of taste have never been at the command of the builder until recently, and it is appreciated. Plastered exteriors will continue to grow more and more popular, and the ambitious designer who qualifies to do things that are worthy in this particular line is already on the high road of success.

### NEW CASTLE ELASTIC PULP PLASTER CO.

We are showing in this issue two views of the New Castle Elastic Pulp Plaster Co.'s plant at New Castle, Pa., one taken from the front and the other from the rear of the plant. New Castle is a fine little city with 38,000 inhabitants, the principal industry being the manufacture of tin. The Carnegie Steel Works have one of their big mills located here. The New Castle Elastic Pulp Plaster Co. have recently made some improvements in their plant, their capacity now being from 100 to 300 tons of plaster per month. They have recently installed electricity throughout the entire plant. Their specialty is Elastic Wood Pulp Plaster, although they make a Sanded Plaster as well. They have succeeded in building up quite a large business and ship over a wide territory.

FRONT VIEW NEWCASTLE ELASTIC PULP PLASTER COMPANY.

### GYPSUM MILL TO OPERATE.

The new plant of the United States Gypsum Co., at Fort Dodge, Iowa, will be in full operation by the first of next month. Some parts of the plant are now running, but there are some minor details of construction which will take another month to complete.

William H. Price, advertising manager of the company, said as to the outlook in their field: "Building conditions are in general active, prospects look good for an enormous spring business which will probably begin about the first of April. When it is fully considered that in Europe the fire loss per year per capita is 33 cents as against $2.50 per year per capita in the United States, and that the smallness of the loss in Europe is due to the use of gypsum, this material will eventually become used throughout. I believe that the combined use of concrete and our gypsum products would put the country in a safe place as far as fire losses are concerned."

### LOUISVILLE PLASTER NEWS.

Louisville, Ky., March 18.—Some local wall plaster manufacturers are considering the adoption of motor trucks in their work, on account of the fact that they have been convinced that in connection with long hauls they will prove more economical than the mule teams which are now in use. A local man is considering the installation of a 5-ton truck, pointing out that he could make deliveries all over the city with it, and could carry enough plaster on each load to supply many of the jobs which he would have. His only objection to the plan is that in bad weather the truck might be put out of commission, as plaster is frequently delivered at points which are not connected with improved streets, where the going is bad. It is likely that he will work out this problem, however, and purchase one of the biggest trucks on the market.

The plant of the Southern Wall Plaster Company, at Floyd and A streets, was destroyed by fire March 10, a lighted cigarette dropped by a workman being responsible for the blaze, it is thought. The shift worked at night March 10, and the fire broke out half an hour or so after the men left. E. J. Kollros is manager of the company, which will probably rebuild. The loss was $8,000.00, partly covered by insurance.

Business with the Kentucky Wall Plaster Company is good, and their mills are going steadily. There is a lot of work on hand for this early in the season, and the outlook is for excellent conditions, Mr. Campbell reported.

### PLASTER MILL IN OPERATION.

The new plaster mill at Kane Springs, Cal., on the desert, is now in operation. The raw material is hauled by traction engines between the mines and the mill, a distance of 2½ miles. Thirty-five tons of gypsum rock are hauled each trip; two trips a day are made. The gypsite is burned in great pots, two hours being required for reducing the gypsite to a marketable commodity.

The plaster mill of the Albert Manufacturing Company, at Hillsboro, N. Y., burned recently, throwing 125 men out of employment. The company is controlled by New York capitalists. The loss was $100,000.00.

The Bellaire Wall Plaster Company has been incorporated at Bellaire, O., with a capital stock of $25,000.00. The incorporators were R. L. Bowman and others.

The F. R. Romer Granitoid Company, of Belleville, Ill., has secured the contract for the contruction of 15,000 square feet of granitoid sidewalks in Carmi, Ill.

REAR VIEW NEWCASTLE ELASTIC PULP PLASTER COMPANY.

A representative of the Meacham & Wright Company reported that business was good this month. Prices are in a fairly firm condition and inquiries and orders were coming in satisfactorily.

Gold Williams, sales agent for the Marquette Portland Cement Company, stated: "The demand is heavy this month and prices are high and going higher. We are doing a good business and believe the spring trade will be record-breaking. There are heavy building operations going on in Chicago. Nine skyscrapers are contemplated or in the process of construction. The subway, if it goes through, will be one of the greatest users of cement ever constructed, and we are all waiting for it."

George W. De Smet reported: "The demand is picking up in very good shape. I believe another month will see a very fine trade. Prices have been on the increase for several weeks, and we will get good money for cement this year. The building ordinance hurt operations, at least temporarily; the 200-foot limit is not practical and the ordinance calls for buildings of such a high class that it does not pay any more to put up apartments on a 50-foot lot."

The strike of the Associated Building Trades has also hurt building. Architects are holding back work to see what will be done. Workmen dispute among themselves and the general opinion is that a law will be enacted soon to remedy the condition.

## COMPLAINT FILED.

Washington, March 16.—In a complaint filed with the Interstate Commerce Commission today, the Alpha Portland Cement Company, of Easton, Pa., delivered a fierce attack on the Steel Trust, declaring its power almost unlimited and exerted in defiance of the law. It charged that its ramifications embraced railroads, cement companies and almost countless other industries.

Practically all of the railroads of the country, including the Pennsylvania, the Baltimore & Ohio, the New York Central, Union Pacific and more than 100 others, the complaint charged, were either subsidized by the Steel Trust or controlled absolutely through an inter-relation of directors. This control, it was alleged, was used to secure low rates and to freeze out competitors with rates so high as to be prohibitive.

The Universal Portland Cement Company, located near Pittsburg, Pa., was declared to be one of the subsidiary concerns of the Steel Trust and was alleged to have been given open preference in rates, car supplies, and in every other way possible by railroads. Violation of practically every section of the interstate commerce law was charged against every railroad carrying the products of the Universal company.

In concluding its complaint, the Alpha company asked the commission to force railroads to give competitors of the Universal company a square deal. Reparation in the sum of $7,801 was asked for alleged excessive freight charges paid during the last year.—Newark, N. J., News.

## LOUISVILLE CEMENT NEWS.

Louisville, Ky., March 18.—Cement manufacturers in this section of the country are exceedingly optimistic just now, for the demand for cement is unusually good for this time of the year, and better prices are being quoted than can usually be secured at the beginning of the season.

Locally it looks as though more cement will be consumed this year than ever before. The big sewer system now being completed has already used up 230,000 barrels of cement, and during the final work should consume 15,000 or 20,000 barrels more. Then the government is planning a lot of work on the locks and canal here, widening the latter, and will make these improvements of concrete. While this work will not be contracted for immediately, it insures a good consumption when it does come.

The K. & I. bridge work, the construction of the Big Four viaduct, the piers of which will be of concrete; the reflooring of the reservoir of the water company and the construction of the water company's intake tower on the river are special construction jobs which are counted on to consume thousands of barrels of cement this season.

Every large building of consequence which is being planned for construction in Louisville is to be of reinforced concrete. Among the buildings of this character which will go up within the next few months are the new $350,000.00 Y. M. C. A. building; the $1,000,000.00 city hospital; the $750,000.00 hotel to be built for Samuel P. Jones and James E. Gamble, and the $200,000.00 addition to the Weissinger-Gaulbert.

"Business with us is exceedingly good for this time of the year," said Henry Gray, of J. B. Speed & Co. "The demand has opened up freely, and we are selling cement in good volume. It looks to me as if we are going to have a mighty good season. Not only is local trade good, but the general situation is favorable." The company's mills at Speed's, Ind., are now running, having started up a few weeks ago. The new concrete bins have been finished, and will be put in use in the next few months. The contract for the elevating and conveying machinery for them has been let, and will be installed shortly.

The Kosmos Portland Cement Company, President Horner reported, is doing a good business, and has many more orders booked than at this time last year. So many reinforced concrete buildings for which the company has contracts for the cement are being planned, Mr. Horner said, that it looks as if this method of construction is being used almost exclusively. Improvements in the plant of the company, which have been under consideration, are still in an embryonic stage, the details to be decided on later. It is reported that the Louisville, Henderson & St. Louis will build a branch to the plant of the Kosmos Portland Cement Company at Kosmosdale.

A report emanating from Paducah, Ky., says that plans are being made for the organization of a cement company with $1,000,000 capital stock. It is stated that Western capital is interested, and that a 400-acre limestone tract has been leased. The correspondent of ROCK PRODUCTS has been unable to confirm the report.

A mammoth cement plant is being built at Pine Hill, Ky., by the Freeborn Construction Co., of Kansas City, Mo. The company recently purchased 2,200 acres of land from J. A. August, of Washington, D. C., and plans a plant with a capacity of 1,600 barrels a day. R. B. Hutchcraft, of Lexington, Ky., is one of the engineers in charge of the construction work.

Gilmer S. Adams, formerly a member of J. B. Speed & Co., and one of the best known business men in the city, has been elected a vice-president of the Fidelity Trust Co., of Louisville.

## SECURITY ELECTS OFFICERS.

At a meeting of the stockholders of the Security Cement & Lime Company, in Baltimore, Md., the following officers were elected: Loring A. Cover, president; Charles Warner, vice-president; H. B. Warner, secretary; A. W. Paige, chairman of the board; directors, Edward W. Mealey, A. W. Paige, A. D. Warner, Charles Warner, De Courcy W. Thom, Douglas H. Gordon, Samuel C. Rowland, H. W. Witridge, R. N. Jackson, William G. Nolting, William C. Robinson and Loring A. Cover.

## WEST COAST CEMENT NEWS.

San Francisco, Cal., March 15.—While business has been rather slack for the last few weeks, the cement industry has been agitated by a number of important moves, which promise to change the Coast situation quite materially. John C. Eden, president of the Superior Portland Cement Company, and A. F. Coats, president of the Washington Portland Cement Company, both of Seattle, Wash., were in San Francisco for some time last month, in conference with George Cameron, managing director of the Standard Portland Cement Company, of this city. It has been rumored that a deal was under way for an alliance of these three interests, but this is denied by Mr. Cameron. The Standard Portland Cement Company is controlled by the Crocker interests, and has the bulk of the business in northern California. The Seattle concerns are said to represent an investment of about $3,000,000.00 each, and dominate the Washington market, and the rival interests have in the past frequently cut prices in each others' territory.

The Ventura Cement Company, of Ventura, Cal., has transferred to the Riverside Portland Cement Company, of Riverside, Cal., a going concern, its deposits of raw materials near Matilija Hot Springs. The Ventura concern has been negotiating for a sale for several years past. The Riverside company has ordered a lot of new equipment, including tube mills, etc., which will be installed during the spring.

The San Juan Portland Cement Company, of San Benito county, California, has been figuring on a lot of new equipment, but operations have been halted by a legal fight over the control. The contest, which is directly between F. L. Brown, president of Brown, Wilson & Co., the New York brokers who originally financed the project, and other directors of that firm, is now in the courts in San Francisco.

An agent of the Spreckles interests of San Francisco has purchased 213 acres of land adjoining the plant of the Cowell Portland Cement Company, near Martinez, Cal., on the line of the Oakland & Antioch Railroad, and it is understood that a new cement plant is projected.

## THE MANUFACTURE OF CEMENT.

ADDRESS OF E. U. LEH, MEM. AM. SOC. OF CIVIL ENGINEERS, TO THE ASSOCIATION OF CIVIL ENGINEERS AT THE UNIVERSITY OF CALIFORNIA AT BERKELEY.

The history of the cement industry dates from the researches of John Smeaton, who had been employed by the English government to build a lighthouse upon a group of gneiss rocks in the English Channel, near the coast of Cornwall in Devonshire. These rocks, known as Edystone, were at high tide under the water for some hours, and many ship wrecks have occurred upon them and were a great menace to the navigation of this part of the channel. It was therefore decided to erect a lighthouse. Two temporary structures had already been built upon these rocks but were destroyed by the fury of the elements. Smeaton was determined to build a structure that would resist the fiercest storms. One of the great difficulties which he had to overcome was the failure of ordinary lime mortar to set under water, and he commenced investigation in 1756 to produce a mortar that would meet this difficulty. Pure limestones, hitherto considered best for lime making, were in reality inferior to the more soft and clayey limestones, for from the latter, he succeeded in obtaining a lime far superior to any then in use, because it not only hardened in air, but would also harden under water. Such a limestone Smeaton found near at hand at Aberthaw in Cornwall and, a hydraulic lime formed by the burning of this stone, was the basis of the mortar used in the construction of the Edystone lighthouse, and it stands today a monument to his skill and a blessing to navigators.

Smeaton, in making his hydraulic lime, used only those layers of his quarry which, after burning, gave a product that would slake with water. The idea of burning the layers which would not slake rapidly and then, by grinding, convert them into a very energetic hydraulic lime, did not suggest itself to him, and it was forty years later (1796) that this improvement, which was called Roman cement, and which was made by calcining argillo calcareous kidney-shaped nodules, called Septaria, and grinding the resultant product to a powder, was patented by James Parker, of Northfleet, England. In composition these nodules were similar to what we call argillaceous limestone, out of which Rosendale cement is made. This cement came rapidly into favor with English engineers because much work could be done with it that was impossible with quicklime.

In 1802 cement was produced from the same stone at Boulogne, France, and this was the beginning of the cement industry in that country. In 1810 Edgar Dobbs, of Southwich, England, obtained a patent for the manufacture of artificial Roman cement by mixing carbonate of lime and clay, moistening and moulding into bricks and burning sufficiently to expel the carbonic acid without vitrifying the mixture. This burning was done in upright kilns. Soon after this Sir William Paisley in England, and L. J. Vicat, a French engineer, both independently of each other, made exhaustive experiments looking to the manufacture of the artificial Roman cement by using clay with chalk, etc.

In 1813 Vicat began the manufacture of artificial hydraulic cement in France, as also did James Frost in England in 1822. In 1824 James Aspdin took out a patent in England for the manufacture of an improved cement by calcining a mixture of limestone and clay. To the resultant powder he gave the name of Portland cement, because when it hardened, it produced a yellowish grey mass, resembling in appearance the stone found in the various Portland quarries on the south coast of England. These well known quarries, of which there are about fifty in number, are situated in Dorchester, on the Isle of Portland, a peninsula extending out into the English Channel. The Portland stone is a white or creamy hard, closely compacted limestone of the oolitic variety, the best quality being found in the top bed in the northeastern part of the peninsula. For centuries, this stone has been a favorite building stone in England for cathedrals, etc.

The earliest Portland cement was probably, so far as its properties were concerned, like one of our poorer, low lime grades of natural cements. These defects were, however, overcome, when Aspdin took up the manufacture on a commercial scale, and before 1850 the new product had established its value.

There are now manufactured and sold in this country three kinds of hydraulic cement.

First. Natural, natural rock, or Rosendale cement, which is made by burning suitable limestone to the point where most of the carbonic acid is expelled, and then grinding to powder, the resultant soft, brownish-yellow clinkers.

Second. Portland cement, which is made by grinding to an impalpable powder, a mixture of argillaceous and calcareous substances in the proper proportions, burning the mixture to a point of incipient vitrification, and then grinding the resultant greenish-black clinker.

Third. Slag cement, which is made by grinding together a mixture of granulated blast furnace slag and limestone, which, after being calcined and ground, is similar to Portland cement.

The beginning of the cement industry in the United States dates to the discovery in 1818 of a natural cement rock in New York state by Mr. Canvass White, an engineer engaged in the construction of the Erie Canal. This cement was used in large quantities in the construction of the Erie Canal. In the early days the greatest users of cement were the canals, and they at that time furnished the only means for the transportation of bulky materials.

There was naturally a sharp lookout kept along the line of construction for limestone, suitable for the making of hydraulic cement. In consequence of this, nearly all of the early cement mills were started along the line of and to furnish cement for the construction of some canal.

In 1825 cement rock was discovered in Ulster County, New York, along the line of the Delaware and Hudson Canal, and in the following year a mill was started at High Falls in that county.

In 1828 a mill was built at Rosendale, also in Ulster County. This soon became the center of the industry, and the cement made here was called Rosendale. This name is still largely applied to American natural cement.

In 1829 cement rock was found near Louisville, Ky., John Hulme & Co. at once embarked in the manufacture of cement at Shipping Port, a suburb of Louisville.

In 1836, during the construction of the Chesapeake and Ohio Canal, cement rock was found at Round Top, Md. Manufacturing of cement is still going on at this place at the present day.

In 1850 cement rock was discovered along the Lehigh Coal and Navigation Company canal at Siegfried, Pa. Soon after cement rock was found at many places in the Lehigh district, where at the present time 60 per cent of all cements used in the United States is manufactured.

The manufacture of natural cements continued steadily. Increasing year by year, it gained favor amongst the engineers, and large quantities were being used.

In 1866 David O. Saylor, Essias Rehrig and Adam Woolever, all of Allentown, Pa., organized a company called the Coplay Cement Company, and located a plant in the Lehigh district near Siegfried, Pa. Mr. Saylor was president of the company, as well as its superintendent. The methods applied to manufacture were crude. However, Mr. Saylor, a very energetic man, began experimenting by taking out of the clinker of natural cement the hardest burned, and by pulverizing this product, he tested it and found it to be of a greater tensile strength than the ordinary natural cement. He also discovered that the rock from some parts of this quarry made better cement than from others. Consequently, by examination he found that the cement which gave the greater strength contained more lime; also that the cement which had the greatest strength, and which was composed of higher lime, crumbled away in time, which was due to the raw materials being improperly proportioned. The results of these experiments taught him to mix his high limed cement-rock and low limed cement rock in certain proportions, and after many experiments and trials he turned out the first true Portland cement in 1875.

This was the first Portland cement made in the Lehigh district, and probably in the United States.

Knowing how to produce a high grade Portland cement was not all that was necessary. The next difficulty encountered was the sale of it. This new American Portland cement was evidently manufactured at a high cost; therefore he could not afford to offer it at a lower price than the imported article. Foreign Portland cements at this time had established good records and they fought the introduction of a new article. It was only by liberal methods that Mr. Saylor secured a market for his product which amounted to only 1,700 barrels a year.

Amongst the first engineering works in which Saylor's Portland cement was used was the Eads Jetties along the Mississippi River, and the first high building in which American Portland cement was used was the Drexel Building, Philadelphia.

While Saylor was experimenting in the Lehigh district a concern known as the Eagle Portland Cement Company of Kalamazoo, Mich., at the same time experimented with marl and clay. This process was semi-dry. The composition was mixed and brought to a consistency, by which it could be made into brick form, after which the bricks were dried and then placed into a bottle-shaped, upright kiln, one layer of brick, one layer of coke and so on until the kiln was filled and burned to incipient fusion. These then were drawn out at the bottom of the kiln and hand picked; that which showed a yellowish color was thrown out, and only the harder burned material was used for Portland cement. This plant, however, was forced to shut down on account of its high cost of manufacture. Saylor's plant, since its inception, has grown steadily and now has a capacity of about ten thousand barrels daily production.

In 1883 the American Portland Cement Company was organized. Robert W. Lesley was its first president and John W. Eckert its chemist. These gentlemen played an important part in the early history of the Portland cement industry in the United States. Following the American Cement Company, the Atlas, Bonneville, Alpha, Lawrence, Vulcanite and Lehigh companies were organized and are now large producers in the Lehigh district.

Soon after this mills were built in many states, manufacturing Portland cement from various raw materials. Since 1890 rapid strides have been made in the cement industry and plants have been built in almost every part of the country, so much so that practically it has displaced the imported article.

In 1889 five million barrels of Portland cement were consumed, and, in eleven short years, the consumption has reached the startling figures of seventy million barrels. It is readily seen from these figures how rapidly Portland cement has displaced the natural variety. It is difficult to grasp what the consumption of seventy million barrels in one year means. Seventy million barrels, or thirteen million, three hundred thousand tons loaded on freight cars will make a train extending from San Francisco to Chicago, or one solid train, practically three thousand miles long, or a wall eight feet high, two feet thick, can be built around the entire world with it. Twenty-one million tons of limestone and clay were required in its manufacture and, approximately, six million, three hundred thousand tons of fuel were required.

It is only a few years since the American Portland cement industry was in its infancy and today the United States stands as a giant among the cement producing nations of the world. This enormous increase of American Portland cement, owing to its commercial and scientific reputation, has steadily established, making it one of the greatest industries in the United States. In consequence of new methods of construction and application, it has necessitated a corresponding advance in the scientific manufacture, in order that the same may be rendered suitable and satisfactory under the stringent conditions to which it is now liable to be subjected.

This enormous increase, already spoken of, is especially due to the fact that the United States is, apparently, a new country, and from an engineering standpoint has arrived at the time when standards of stability are required in the construction of public works, such as bridges, sewers, aqueducts, viaducts, dams, reservoirs, filtration plants and large buildings; furthermore, it is due to the wonderful development of American ingenuity in the field of reinforced concrete, concrete blocks, concrete cement bricks and other forms of cement construction.

The use of Portland cement is unlimited. At the present time we have no conception of what can be accomplished with it as a building material.

In the manufacture of Portland cement the three cardinal things to be considered are: the quality, quantity and location of raw materials. No time and money should be spared to employ the best experts to thoroughly investigate and examine the raw materials for the manufacture of Portland cement. Many hundred thousand dollars have been wasted by not carefully and thoroughly examining the raw materials. The deposits should be carefully drilled as to quality and quantity. The location is of no less importance than the quality and quantity of raw materials. On these three things largely depends the future success of a Portland cement plant. Portland cement is, for its value, a bulky product. Therefore, more than one transportation route should be available, and, if possible, one of the routes should be a good water route.

The fuel and supplies which must be brought to the plant figure very largely in the cost of manufacture. Cement plants should be so located as to have a local market area, within which it may sell, practically on a non-competitive basis, 50 per cent of its production and they should have an easy access to a large, though competitive, market area.

Many of the large cement plants in operation today have suffered severe losses on account of unthorough and improper investigation of the raw materials. The analytical, physical and natural conditions require a great deal of thought and study before the selection of the raw materials and before the location of a cement plant is decided upon. After this has been thoroughly done, it is also very necessary to have engineers who are capable of deciding and selecting the machinery required to handle such materials. plant depends largely upon the local conditions and the amount of money to be spent in constructing the plant. Long experience has demonstrated that the heaviest and best machinery is none too good in a Portland cement plant, and if a saving is necessary, it should be effected on the buildings and not at the expense of the mechanical equipment, as the wear and tear in this particular line of manufacture is probably greater than in any other industrial enterprise. The constant and steady operation of the different machines, which, generally speaking, are operated twenty-four hours every day, render it impossible to make any extensive repairs, without causing a shutdown to the entire plant, and thus it is that Portland cement works require a complete overhauling once each year.

E. U. LEH, COWELL PORTLAND CEMENT CO., COWELL, CAL.

While the foregoing shows the importance of entrusting the design to skillful and experienced hands, it is just as necessary to the ultimate success of the plant that the construction should be supervised by these same parties. The success of many an enterprise is endangered by incorrect interpretation of specifications and design, and this is especially true in the erection of a cement plant. The necessary care and vigilance of parties familiar with both the design and the operation are continually required during the course of erection and until the plant is ready to operate. Then follows the most critical period in the life of a plant. From the time that the various departments are set in operation until the entire plant is running smoothly and successfully the operation should be entrusted absolutely and entirely to experienced hands. Unfortunately, the converse of this has been proved in a large number of plants erected in this country during the past few years. A plant, to be successful, should be designed and constructed by experienced engineers and afterwards operated under their management until it is in successful running order. Then it should be turned over to skillful operators who are thoroughly familiar and who are masters of the processes and machinery employed. In many instances this has been neglected and large additional money has had to be appropriated to correct the errors made, in order to make it a successful plant.

There are approximately one hundred and twenty cement plants in operation in the United States today. I can say, without hesitation, that no two of these are alike, naturally, physically, chemically and mechanically. Therefore it is necessary to decide upon a process and to select machinery adaptable to the raw materials.

The manufacture of Portland cement, at the present day, consists of three processes—wet, semi-wet and dry.

The raw materials used in the wet process are mostly marl and clay or shale. This process is but very little in use at the present day, on account of the large amount of moisture in the material. Marl deposits are found in small lakes in various parts of the country and contain about 55 per cent of water. The marl is dredged and delivered to the plant by pneumatic pumps. It is largely composed of small shells and is reduced to a fine powder by grinding in tube mills. These mills I will describe later on. After leaving the tube mills it is put into large tanks, analyzed, and the required amount of clay, which has been finely ground, is added to each tank. Each of these tanks, which are supplied with a series of pipes laid in the bottom of the tank, with many small holes drilled into them, through which is forced compressed air at from sixty to eighty pounds' pressure, is thoroughly agitated, mixed and the marl and clay kept in suspension until after another analysis is made of this material and, if any correction is necessary, it is then done and afterwards pumped, by slurry pumps, to the rotary kilns. From here on it is handled much in the same manner as in the dry process. On account of the large amount of moisture which has to be driven off it makes it rather expensive to manufacture, and therefore the process is going rapidly out of existence.

The semi-wet process is also very little used at the present day, in the United States, on account of the high cost of manufacture, but in Germany it is still in practice. As partly described in the wet process, the raw materials in the semi-wet process, namely, limestone and clay, or marl and clay, are ground separately to an impalpable powder, after which the correct proportions of limestone and clay are mixed, in a mixing machine, and about 30 per cent of water added to bring it to the consistency by which it can be made into bricks. These bricks are placed on trucks, which are then put into a heating chamber and dried. As soon as they are dried they are removed and placed on the kiln floor. The kilns used in this process are upright kilns, similar to the kilns used in burning lime. The bricks are put into the kilns in layers, one layer of brick, one layer of coke and so on until the kiln is filled. The kiln is ignited from the bottom and the material is burned to an incipient fusion, after which it is taken out from the bottom and assorted by hand, only the harder burned clinkers being taken. This is then ground in the same manner as in the dry process.

The materials used in the dry process are generally limestone, shale, clay or argillaceous limestone, with either a little addition of limestone or clay. The limestone is crushed by large crushers. The shale or clay is disintegrated by disintegrators. Both the limestone and clay are then dried, mixed in the proper proportions, pulverized to a powder and then burned in the rotary kiln. The resultant clinker is then pulverized to a powder, which is called Portland cement.

I do not propose to describe in detail the various methods of manufacture, as they vary considerably, in accordance with the requirements of the raw materials employed, and for the information of those who have not had the advantage of inspecting a modern cement plant I have a series of lantern slides, which will be exhibited on the screen and properly explained. I will now describe to you one of the most modern plants in operation today, which is on the dry process, the Cowell Portland Cement Company's plant at Cowell, Cal.

The manufacture of Portland cement, itself, is naturally divided into five heads, as follows:

First: Mining and quarrying of raw materials.

Second: The drying and grinding of raw materials.

Third: Proper proportioning and mixing of these materials.

Fourth: Burning the combined raw materials to incipient vitrification.

Fifth: Grinding the clinker thus burned to the extremely fine powder, known as Portland cement.

The limestone is quarried by drilling holes into the bank with air drills, after which it is blasted and then loaded by a large steam shovel into side dump cars of seven tons' capacity each. The cars are drawn by locomotives from the quarry to the crushers. The crushers are of the gyratory type, one No. 9 and two No. 6, driven by individual motors. The cars of rocks are dumped into the No. 9 crusher, which reduces it to four inches in size and smaller. The product passes into a rolling screen of two-inch mesh. That which does not pass through the screen is elevated by an elevator and delivered into two No. 6 crushers, which reduces the rock to two inches and smaller, the whole of which passes through chutes onto a belt conveyor and then into large storage bins. These storage bins are elevated, so as to permit a train of cars to be pulled through underneath. Gates are provided on the bottom of the stone storage which can be opened and the crushed stone thereby drawn out of the bins into the cars, which, when loaded, are taken to a large storage at the plant, which is of twenty thousand tons' capacity.

The clay deposits, which are adjacent to the limestone deposits, are operated in the same manner, only omitting the crushing. The clay is quarried by a steam shovel, loaded directly into side dump cars, after which it is taken to the storage bins at the plant. The clay is then drawn out from the bottom of these bins and conveyed by a belt conveyor to disintegrating rolls, which disintegrates the clay to one inch in size and smaller. After passing through the disintegrating rolls it passes into a rotary dryer, which is a cylindrical shell made of steel, five feet in diameter and sixty feet long, with six lifting bars inside. The intake of the dryer is covered with a brick housing, upon which is a stack to give draft and to carry off the moisture. At the discharge end of the rotary dryer is a movable hood, cylindrical in shape, entirely composed of fire brick. Through the center of this hood is a small opening, in which is installed an oil burner. This supplies the heat to thoroughly dry the clay, which is necessary in order to pulverize it. The dryer is inclined at one-half inch per foot. There are two steel tires attached to the cylinder which revolve on steel rollers. A girth gear is bolted onto the cylinder and the dryer is driven by a train of gears which are directly under the cylinder. The heat being generated on the outlet end and passing through the dryer drives the moisture from the clay, whereupon it is carried out through the stacks. The lifter bars inside of the dryer carry the material about one-third around and then drop it through the heated atmosphere, which travels in a direction opposite to the clay, and by the time the clay reaches the discharge end it is perfectly dry. The dried clay then passes through a Williams mill, which reduces it to a fineness which will pass through a twenty-mesh screen. It is then delivered into large storage bins, of which there are three. An average sample of each bin is obtained while the material is passing into it and an accurate analysis is made.

(To be continued next month.)

# QUARRIES

## CONVENTION OF AMERICAN RAILWAY ENGINEERING AND MAINTENANCE OF WAY ASSOCIATION.

The twelfth annual convention of the American Railway Engineering and Maintenance of Way Association opened at the Congress Hotel Annex, Chicago, March 21. The report of the committee on ballast was read as follows. This report will be incorporated in the annual manual of the association, which gives the standard specifications for ballast used by railroads:

### Report of Committee II—On Ballast.

To the Members of the American Railway Engineering and Maintenance of Way Association:

Your Committee on Ballast begs to submit the following report:

Two meetings were held during the year at the rooms of the association in Chicago, one on May 26, at which the following members were present: C. A. Paquette, vice-chairman; W. J. Bergen, C. S. Millard, C. T. Brimson, J. M. Meade; and another on October 6, at which the following members were present: John V. Hanna, chairman; F. J. Stimson, S. N. Williams, W. J. Bergen, C. C. Hill.

On April 27, by letter, sub-committees were appointed as follows:

Sub-Committee A, Revision of Manual—F. J. Stimson, chairman; W. J. Bergen, C. B. Brown, Jr.

Sub-Committee B, Completing Physical Tests of Stone for Ballast—F. J. Bachelder, chairman; C. S. Millard, C. T. Brimson.

Sub-Committee C, Proper Thickness of Ballast—H. E. Hale, chairman; J. M. Egan, S. N. Williams.

Sub-Committee D, Review Report on Gravel Ballast—J. M. Meade, chairman; J. S. Lemond, C. C. Hill, G. D. Hicks.

At the meeting on May 26 a suggestion was made to the members present that an effort be made to confer with the Masonry Committee, with a view to agreeing upon a definition of sand which would serve for both committees. This is covered by the report of Sub-Committee A, as follows:

#### REPORT OF SUB-COMMITTEE A—REVISION OF MANUAL.

Certain changes were made in the wording in the Manual in order to get the changes incorporated in the new edition.

The term "Broken or Crushed Rock" was changed to "Stone Ballast," inasmuch as stone seems to be the most common expression used by railroad men in speaking of ballast of this nature.

Paragraph 2 was changed so as to combine "A" and "B" to read as follows:

"It shall be broken into pieces of such size that they will, in any position, pass through a 2½-inch ring and will not pass through a ¾-inch ring.

"It shall be free from dirt, dust or rubbish."

The heading "Gravel, Cinders and Burned Clay Ballast," has been made to read "Gravel, Cinder and Burned Clay Ballast."

The first paragraph has been made to read "Gravel Ballast," instead of "Gravel." The last part of this paragraph has been eliminated, and in place thereof the specifications have been introduced.

The second paragraph covering Cinder Ballast has been headed "Cinder Ballast" instead of "Cinders."

Proof for the new edition of the Manual was corrected generally, so that, in the opinion of the committee, it makes better wording.

#### DEFINITION OF SAND.

The proposition to change the definition of "Sand" so as to make it coincide with that given by the Masonry Committee or to formulate a compromise definition does not appear to be tenable. The use to which the material is to be put governs the nature of the definition entirely. It must be conceded by all that the term "Sand," as used by the Masonry Committee, as well as by the Committee on Ballast, is entirely empirical. There are no mechanical or chemical tests that will determine scientifically where the dividing line between gravel and sand and between sand and dust lie. These divisions will vary as the use to which the material is to be put varies.

The only definition which can be used that is common to each committee would be that formerly used by the Ballast Committee, but discarded at the 1909 convention, viz.: "Any hard, granular, comminuted rock material, finer than gravel and coarser than dust." As a general, all-comprehensive definition this cannot be excelled, but as a definition of what is meant by either the Ballast or Masonry Committees when using the term "Sand" in specifications, nothing could be more misleading or indefinite.

As the use of the term by each committee is entirely empirical and the definitions used refer to that arbitrary use of the term, it appears that it is not desirable to make any change in this committee's definition. As a matter of fact, the Masonry Committee, so far as we can find in the Manual, do not define "Sand," but do give specifications for different qualities of sand which is to be used for different purposes.

Your sub-committee recommends, therefore, that the definition of sand remain as adopted in 1909, viz.: "Any hard, granular, comminuted rock which will pass through a No. 10 screen and be retained upon a No. 50 screen."

#### REPORT OF SUB-COMMITTEE C—PROPER THICKNESS OF BALLAST.

Some of the reasons for the use of ballast in track construction are as follows:

(a) To provide drainage which will lead any water that may accumulate away from the ties; or to provide a protection for the subgrade from water, as in the case of cementing gravel.

(b) To distribute the load from the ties more uniformly over the subgrade than would be done if the ties rested directly upon the subgrade.

(c) To provide a material which can readily be "worked" or tamped in all kinds of weather and which will not materially lose its carrying power or change its position as a result of the action of the elements.

The proper depth of ballast under the ties will depend, among others, upon the following:

(a) The character of the subgrade:
(1) Rock.
(2) Firm material, as firm gravel.
(3) Soft material, as gumbo.
(b) The kind of ballast:
(This affects the depth of ballast but slightly compared with other conditions.)
(c) The number and size of ties per rail length:
(This determines the bearing surface on the bottom of the tie in a given length of track.)
(d) The stiffness of the rail:
(1) 135-pound used on C. R. R. of N. J.
(2) 40-pound used on branches.
(e) The weight and magnitude of the wheel load and the number of applications in a given period:
(1) 100 cars per day.
(2) 2,000 to 3,000 cars per day.
(f) The cost of materials used in construction of the track.

#### CHARACTER OF SUBGRADE.

If the subgrade is of rock it will not be deformed by wet weather and it will carry all the load that can be put upon it by a timber tie; therefore, the depth of ballast required in this case is only sufficient to provide an equal bearing under the tie and sufficient material for tamping purposes.

If the subgrade is soft, then it is necessary to provide a depth of ballast which will produce as nearly as possible a uniform pressure on the subgrade.

In a lecture delivered by Railroad Director Schubert before the "Verein für Eisenbahnkunde," at Berlin, Germany, on March 14, 1899 (see Proceedings, American Railway Engineering and Maintenance of Way Association, Vol. 7, p. 105), it was stated from experiments made during 1887 to 1890 that "a given railroad track whose roadbed consists of clay, a swelling of same between the ties will not occur, even under the most favorable conditions when the height of the bed (depth of ballast under tie) is increased eight inches over the clear distance between the ties." The tests and results of same are very clearly given in the above-mentioned lecture.

There is a report on "Strength of Track for High Train Speeds," made to the International Railway Congress by the Reporter for America, Mr. M. L. Byers, Chief Engineer Maintenance of Way, Missouri Pacific Railway, which may be found in Engineering News of February 3, 1910. This article is of considerable interest in the discussion of the proper depth of ballast.

Between solid rock and soft material, such as gumbo, there exists material used for subgrade of various capacity for supporting the load of the track. The softer the material used in the subgrade, the deeper should be the ballast (within certain limits), to provide as uniform pressure on the subgrade as possible.

#### KIND OF BALLAST.

The required depth of ballast under the tie is not materially affected by the kind of ballast, although it is generally the practice to provide a less depth of stone ballast than gravel ballast. (This is probably largely affected by the high cost of stone.)

#### NUMBER AND SIZE OF TIES PER RAIL LENGTH.

The number of ties per rail length, where the roadbed is soft, materially affects the depth of ballast, for the

**Appendix A.**

**STATEMENT SHOWING DEPTH OF BALLAST USED BY VARIOUS RAILROADS.**

| Name of Railroad. | Class of Track. | DEPTH OF BALLAST UNDER TIE. Center of Tie—Kind of Ballast. Rock. | Gravel. | Cinders. | Sand. | End of Tie—Kind of Ballast. Rock. | Gravel. | Cinder. | Sand. |
|---|---|---|---|---|---|---|---|---|---|
| Baltimore & Ohio | A | a12 in. | b12 in. | 12 in. | | a12 in. | b13 in. | 13 in. | |
| | B | 9 in. | 9 in. | 9 in. | | 9 in. | 9 in. | 9 in. | |
| | C | 6 in. | 6 in. | 6 in. | | 6 in. | 6 in. | 6 in. | |
| Boston & Maine | A | | 13 in. | | | | 13 in. | | |
| | Bd | | 13 in. | | | | 15 in. | | |
| Canadian Pacific | A | 7 in. | 7 in. | 7 in. | | 9 in. | 9 in. | 9 in. | |
| | B | | 7 in. | 7 in. | | | 9½ in. | 9½ in. | |
| Chicago & Alton | | c12 in. | 12 in. | f12 in. | | c13½ in. | 13½ in. | f13 in. | |
| Chicago, Burlington & Quincy | | 8 to 12 in. | 8 to 12 in. | 8 to c12 in. | | 8 to 12 in. | 8 to 12 in. | g8 to 12 in. | |
| Chicago Great Western | A | 12 in. | 12 in. | 12 in. | | 13 in. | 13 in. | 13 in. | |
| | B | 9 in. | 9 in. | 9 in. | | 10 in. | 10 in. | 10 in. | |
| | C | 6 in. | 6 in. | 6 in. | | 7 in. | 7 in. | 7 in. | |
| Chicago, Milwaukee & St. Paul | A | | h12 in. | 12 in. | | | h13 in. | 13 in. | |
| | B | | h10 in. | 10 in. | | | h10 in. | 10 in. | |
| | C | | h8 in. | 8 in. | | | h8 in | 8 in. | |
| Denver & Rio Grande | A | | 12 in | | | | 12 in. | | |
| | B | | 10 in. | | | | 10 in. | | |
| | C | | 8 in. | | | | 8 in. | | |
| | D | | 6 in. | | | | 6 in. | | |
| New York, New Haven & Hartford | | 9 in. | 7 in. | 7 in. | 7 in. | k8 & 10 in. | 9½ in. | 9½ in. | 9½ in. |
| Pennsylvania | | 6 in. | 6 in. | 6 in. | | 7 in. | 7 in. | 7 in. | |
| Rock Island Lines | A | m6 to 10 in | 6 to 10 in | 6 to 10 in. | m6 to 10 in. | m6 to 10 in. | 6 to 10 in. | 6 to 10 in. | m6 to 10 in. |
| | B | 6 to 10 in. | 6 to 10 in. | 6 to 10 in. | 6 to 10 in. | 6 to 10 in. | 6 to 10 in. | 6 to 10 in. | 6 to 10 in. |
| | C | 6 to 10 in. | 6 to 10 in. | 6 to 10 in. | 6 to 10 in. | 6 to 10 in. | 6 to 10 in. | 6 to 10 in. | 6 to 10 in. |
| St. Louis Southwestern | * | 12 in. | 12 in. | 12 in. | 12 in. | 13 in. | 13 in. | 13 in. | 13 in. |
| St. Louis & San Francisco | A | o6 to 10 in | 6 to 10 in. | 6 to 10 in | p6 to 10 in. | o6 to 10 in. | 6 to 10 in. | 6 to 10 in. | p6 to 10 in. |
| | B | 6 to 10 in | 6 to 10 in. | 6 to 10 in | 6 to 10 in. | 6 to 10 in. | 6 to 10 in. | 6 to 10 in. | 6 to 10 in. |
| | C | 6 to 10 in. | 6 to 10 in. | 6 to 10 in. | 6 to 10 in. | 6 to 10 in. | 6 to 10 in. | 6 to 10 in. | 6 to 10 in. |
| Texas & Pacific | * | 8 in. | 8 in | 8 in. | | 9 in. | 9 in. | 8 in. | |
| Wabash | A | r8 in. | | | | r13 in. | | | |
| | | s r13 in. | | | | r8 in. | | | |

**STATEMENT SHOWING DEPTH OF BALLAST USED BY VARIOUS RAILROADS.—Continued.**

| Name of Railroad. | Height and Slope of Shoulder. Dist. from Top of Tie to Top of Shoulder. | Width of Roadbed. Slope. | Cuts. | Fills. | Tie Drains. | Remarks. |
|---|---|---|---|---|---|---|
| Baltimore & Ohio | 1½ in. | c1½ to 1 | 18 ft. | 20 ft. | | a Includes hard slag. |
| | 1½ in. | 1½ to 1 | 16 ft. | 18 ft. | | b Incl. granulated slag. |
| | 1½ in. | 1½ to 1 | 14 ft. | 16 ft. | | c Slope is being changed from c'r'd to 1½ to 1. |
| Boston & Maine | 1 in. Bottom of tie | 1½ to 1 Curved | 19 ft. 5 in. 18 ft. | 19 ft. 5 in. 18 ft. | | d Roadbed has transverse slope ¾ in. to 1 ft. In wet ledge cuts, depth of ballast is sometimes increased to 2 ft. |
| Canadian Pacific | Top tie rock Others 1 in. | Curved Curved | 16 ft. 14 ft. | 16 ft. 14 ft. | | e Includes furnace slag. |
| Chicago & Alton | Top tie rock, bot. gr'v'l | 1½ to 1 curved | 18 ft. | 18 ft. | | f Cinders used in sidetracks only. |
| Chicago, Burlington & Quincy | 1½ in. | Rock 1½ to 1 Others 2 to 1 | 18 ft. | 18 ft. | 4 & 8 in. pipe under ditch | g Includes burned clay. Ballast varies from 8 in. in sand to 18 in. in clay. |
| Chicago Great Western | Top of tie, bot. for cementing gravel | 1½ to 1 | 20 ft. | 20 ft. | | h Includes burned gumbo. Depth of ballast varies from 6 in. to 18 in. with local conditions and variation in volume of traffic. |
| | | 1½ to 1 | 18 ft. | 18 ft. | | |
| | | 1½ to 1 | 16 ft. | 16 ft. | | |
| Chicago, Milwaukee & St. Paul | 1½ in. | 2 to 1 | | | | |
| | 1½ in. | 2 to 1 | | | | |
| | 1½ in. | 2 to 1 | | | | |
| Denver & Rio Grande | About 1 in. | Curved | 18 ft. | 20 ft. | | k Rock used on double and 4 track. Only 4-track section shown; sub-grade had transverse slope ¼ in. to 1 ft. |
| | About 1 in. | Curved | 18 ft. | 20 ft. | | |
| | About 1 in. | Curved | 18 ft. | 20 ft. | | |
| | About 1 in. | Curved | 18 ft. | 20 ft. | | |
| New York, New Haven & Hartford | Top tie rock Others 8 in. | 1-1 rock 2-1-others | 16 ft. | 16 ft. | | m Includes slag and disintegrated granite. |
| Pennsylvania | Top rock and cinder 1 in. above bot. gravel | 1½ to 1 | 14 ft. 8½ in. | 21 ft. 8½ in. | 6 in. C. I. pipe cross drain | n Includes chats. Depth of ballast varies with nature of soil. |
| Rock Island Lines | 1½ in. | 2 to 1 | 20 ft. | 20 ft. | Cross drain where needed | * Shoulder is dressed to bottom of tie in cementing gravel. |
| | 1½ in. | 2 to 1 | 18 ft. | 18 ft. | | o Includes slag and disintegrating granite. |
| | 1½ in. | 2 to 1 | 16 ft. | 16 ft. | | p Includes chats. Depth of ballast varies with nature of soil. |
| St. Louis Southwestern | Top tie rock, bot. sand | 1½ to 1 | 17 ft. | 18 ft. | | * Variation from standard made account of scant supply of ballast. |
| St. Louis & San Francisco | 1½ in. | 2 to 1 | 20 ft. | 20 ft. | | r Kind of ballast not stated. Standard not followed in sidetracks. |
| | 1½ in. | 2 to 1 | 18 ft. | 18 ft. | | |
| | 1½ in. | 2 to 1 | 16 ft. | 16 ft. | | |
| Texas & Pacific | 1 in. from bottom, top tie rock | 1½ to 1 | 18 ft. | 15 ft | | |
| | | 1 to 1 rock | | | | |
| Wabash | Top of tie | Curved | 18 ft. | 18 ft. | | |
| | Top of tie | Curved | 16 ft. | 16 ft. | | |

fewer the ties the greater the weight on each tie, and a greater depth of ballast will be required to distribute the load more uniformly over the subgrade.

### STIFFNESS OF THE RAIL.

The stiffness of the rail materially affects the depth of ballast, for with the stiffer rail the wheel load is distributed over a greater number of ties and therefore the load on each tie is reduced. The unit weight being less, it is not necessary to distribute same as uniformly on the subgrade.

### WEIGHT AND NUMBER OF WHEEL LOADS.

The greater the weight and number of wheel loads the greater the necessity for increased depth of ballast, so as to distribute the weight on the subgrade as uniformly as possible.

### COST OF MATERIAL USED TO CONSTRUCT THE TRACK.

From an economic standpoint the proper depth of ballast frequently depends on the cost of the various materials of which the track is constructed; for example, where ballast is very expensive it may be advisable to increase the weight of rail and cut down the depth of ballast.

### DIMENSIONS OF BALLAST SECTION.

As information, an appendix "A" is given, being a statement giving the dimensions of the ballast sections on various railroads.

### CONCLUSION.

On account of the complicated conditions which govern the proper depth of ballast, your sub-committee feels unwilling to recommend any definite rule for the proper depth of ballast, but offer the above information as a guide to determine the proper depth of ballast where the local conditions are known.

Sub-committee B has not submitted a report.

Sub-committee D did considerable work upon the subject assigned to it and submitted a report to the general committee. It was the opinion of the members present at the meeting of October 6 that it was advisable to consider the subject of gravel ballast further before adopting the sub-committee report. The latter was accordingly referred back to the sub-committee for further investigation.

Your committee asks that the recommendations contained in the report of Sub-committee A, Revision of Manual, be adopted.

The committee requests that the other matters assigned to the ballast committee be referred back for further consideration. Some, if not all, of the members feel that there is much valuable information to be gained by further investigation of the subject of proper thickness of ballast; that independent investigations, with possibly some instrument designed for the purpose of measuring actual pressure transmitted by ballast, can be made with profit, Respectfully submitted,

John V. Hanna, Chief Engineer, Kansas City Terminal Railway, Kansas City, Mo., chairman.
C. A. Paquette, Assistant Chief Engineer, Cleveland, Cincinnati, Chicago & St. Louis Railway, Cincinnati, Ohio, vice-chairman.
F. J. Bachelder, Division Engineer, Baltimore & Ohio Railroad, Cleveland, Ohio.
W. J. Bergen, Assistant to Chief Engineer, New York, Chicago & St. Louis Railway, Cleveland, Ohio.
C. T. Brimson, Engineer Maintenance of Way, Quincy, Omaha & Kansas City Railway, Kansas City, Mo.
C. B. Brown, Jr., Division Engineer, Canadian Pacific Railway, Montreal, Canada.
J. M. Egan, Roadmaster, Illinois Central Railroad, Fulton, Ky.
H. E. Hale, Principal Assistant Engineer, Missouri Pacific Railway, St. Louis, Mo.
G. D. Hicks, Superintendent, Nashville, Chattanooga & St. Louis Railway, Tullahoma, Tenn.
C. C. Hill, Division Engineer, Michigan Central Railroad, Niles, Mich.
J. S. Lemond, Engineer Maintenance of Way, Southern Railroad, Charlotte, N. C.
J. M. Meade, Engineer Eastern Lines Atchison, Topeka & Santa Fe, Topeka, Kan.
C. M. Millard, Engineer Track & Roadway, Cleveland, Cincinnati, Chicago & St. Louis Railway, Cincinnati, O.
F. J. Stimson, Engineer Maintenance of Way, Grand Rapids & Indiana Railroad, Grand Rapids, Mich.
S. N. Williams, Professor of Civil Engineering, Cornell College, Mt. Vernon, Ia.

In connection with the work of the committee on rules and organization, books of rules of 61 American railways have been received and a compilation made showing the subjects covered by them. The rules on ballast, as followed by the different railways, are as follows:

### BALLAST.

Purpose.—Ballast is used for the purpose of securing a solid bearing for the ties, holding them firmly in position and supporting the tracks as uniformly as possible, distributing the trainloads over the roadbed, providing rapid and efficient drainage, and preventing as far as possible the freezing of the roadbed.

Material.—Ballast shall be of broken stone, gravel, slag, cinders, chats, chert, burnt clay, gumbo or disintegrated granite. The selection of the particular kind of ballast to be used shall be determined by the title.

Quality and Size—Broken Stone—Broken stone ballast shall be clean, free from earth and all foreign substances, of the quality and sizes required under the company's specifications for stone ballast.

Quality, etc., of Gravel.—Gravel ballast shall be of a uniform size, clean and free from fine sand, loam, clay and stones which will disintegrate or cause rough riding track.

Quality, etc., of Cinders.—The use of cinders as ballast is recommended for the following situations: On branch lines with a light traffic; on sidings and yard tracks near point of production; as sub-ballast in wet, spongy places; in cuts and on fills; as sub-ballast on new work where dumps are settling, and at places where the track heaves from frost. It is recommended that provision be made for wetting down cinders immediately after being drawn.

Quality, etc., of Burnt Clay.—The material should be black gumbo or other suitable clay free from sand or silt. The suitability of the material should be determined by thorough testing in a small test kiln before establishing a ballast kiln.

The material should be burned hard and thoroughly. The fuel used should be fresh and clean enough to burn with a clean fire. It is important that a sufficient supply be kept on hand to prevent interruption of the process of burning.

Burning should be done under the supervision of an experienced and competent burner.

Ballast should be allowed to cool before it is loaded out of the pit.

Absorption of water should not exceed 15 per cent by weight.

Depth of Ballast.—The depth and slope of the ballast shall conform to the standard section for the particular kind of ballast to be used.

Preparation of Subgrade.—Track centers and grade lines shall be given by the engineer previous to ballasting track. The subgrade shall be properly prepared for ballast; all unsuitable material above the bottom of the ties removed, and banks widened to retain the ballast and secure good drainage. The track shall then be thrown to line and the ballast delivered.

Open Track, etc.—Track shall be kept in good line and surface when ballasting, and shall be carefully watched to avoid rail buckling and throwing track out of line.

Mixing Ballast With Old Material.—Care shall be taken in handling ballast to prevent mixing with earth, or with old, unsuitable material between and around the ends of ties, or wasting down the slopes of embankments. Ballast forks should be used exclusively for handling broken stone and slag ballast.

Embankments Not Well Settled.—On embankments that are not well settled the surface of the roadbed shall be raised with suitable material. Material for this purpose shall not be taken from the slopes of the embankments.

Tamping.—Ballast shall be well and thoroughly tamped at each end of the ties, directly under and about 15 inches on each side of the rails. The center shall be filled and lightly tamped.

Tamping picks shall be used for tamping broken stone and slag ballast.

Bonded Rails.—Ballast shall not be allowed to come in contact with rails where bonded. At points where it is impossible to prevent such contact, broken stone or clean gravel ballast shall be used.

Surfacing.—The general surface of track must not be raised without proper authority.

Trimming, etc.—After ballast is placed it shall be neatly trimmed, track accurately gaged and properly surfaced and lined to conform to the standard drawing.

Filling Between Tracks.—The space between double tracks up to the underside of the ties shall be filled with coarse stones and then be leveled off with standard ballast up to the tops of ties.

Heaving, etc.—When track becomes foul, churns, heaves, or wet spots develop, the bad material shall be removed to the depth and in the manner required to secure drainage and the space filled up with good material.

Following and during the reading of the report of the committee on ballast, ensued an informal discussion by the members of the association, opened by the president.

President: The next order of business is the report of the committee on ballast. The report of the committee is found in Bulletin 129, pages 97 to 105. The chairman of the committee will present the report.

Mr. Williams: Mr. President and Gentlemen of the Association: Our committee has had two or three different meetings during the year and we have had appointed the sub-committees to consider the division of the work. Mr. Hale has secured the practice of American railways, which is found in Appendix A—a statement showing depth of ballast used by the various railways. I think that report is very valuable. Then the committee investigated the practice of the European railways. I do not think it is necessary to present all their investigation to the association. I have given a general report, which you will find on pages 100 and 101. The sub-committee made some investigation that has met with some results, of the extensive experiments which have been made in Germany in reference to the thickness of the proper ballast. The article which gave the results of these experiments was not obtained in time to present to this association as a part of these proceedings, but we have it and can use it at a later date. Reference to the work of this committee and the general conclusions of this committee are found on page 102.

President: The report of the committee is before the convention for discussion.

Mr. Williams: I might add that there was a meeting of the joint committees on roadway and ballast Monday, and the committees considered the question of range of the united pressure on the top of the sub-grade or the bottom of the ballast, and the joint sub-committees recommended that investigations or tests be made, the expense of which is to be borne by the association, to determine, if possible, the distribution of stress in the ballast from the bottom of the tie to the bottom of the ballast, or to the bottom of the sub-grade. The report of the committees so far has not been such as to give them information to enable them to reach a definite conclusion.

President: On page 102 the committee recommends that the report of the sub-committee and the division of the manual be adopted. We will, therefore, discuss the report of the sub-committee and the division of the manual on page 98. In order to take these subjects up in order—the first subject changing the term "broken or crushed rock" to "stone ballast"—is there any discussion on that subject? If not, the recommendations of the committee will be accepted. Now, proceeding to the next item, the size of the stone, we will take that question up.

Mr. Mead: I want to say as one of the members of that committee that I argued against that large sized stone. It is almost impossible for the section men to surface track or even smooth it up with 2½" rock, and it was not my judgment that that sized stone should be recommended. I would favor changing it to 1½" or even smaller.

Mr. Donald: I move that the sizes—that the wording of the clause regarding the size stone be retained with the exception that the mention of 2" as it formerly appeared in the manual be restored.

Mr. Fields: I would like to amend that to make it 2" for the maximum and ⅝" for the minimum.

President: The question is on the adoption of the highest limit, 2 inches.

Mr. Williams: The committee would like very much to have a full expression of the opinion of the association on this point. It seemed to be a matter of great importance when we made the report as we did, because that seemed to be the preference of the majority of the members and we made the report as we did because that seemed to be the preference of the majority of the members.

Mr. Corbett: I think you can separate the stone ballast trade into two classes: The track where you have your passenger service and the track where you have the heaviest freight service. Now there is a great deal of track that that does not apply to with any very great intensity. We have been obliged to do considerable re-ballasting work on a lot of track which was evidently ballasted with hand-broken stone. I think that the specifications as to the proper limit probably was that the stone must go between the ties. Now, in that condition, the track is very hard to maintain—it is very hard to get any accurate surface on the track and yet, by filling that track in with smaller material and raising it sufficiently to put that coarse rock down below the bottom of the tie we have to make it practically a macadam surface. So I am rather inclined to think that in our discussion we should keep clearly in view these two requirements: The first is, the stone ballast for a passenger line where we must have the absence of dust, and the second is where we wish to have ballast for distributing the pressure from the tie over the subgrade.

Mr. Williams: That is somewhat in line with the investigation of the committee last year. It is found that the Pennsylvania Lines and the Baltimore and Ohio and I think the New York Central were using the larger limit and that the lines of the greatest passenger traffic were favoring the larger rock, 2½ and 3", and so we did the best we could and made it 2½ instead of 3".

Mr. Donald: Mr. Chairman, I would like to withdraw my motion—I made it under a misapprehension.

Second agrees—motion withdrawn.

President: The wording last year was that the maximum size shall not exceed pieces which shall pass through a 2½" ring in any direction. Is there any further discussion on the maximum size? We would like to hear from any members present on this subject. If there is no further discussion on the question of the upper limit as recommended by the committee, 2½", we will pass to the lower limit of ¾".

Mr. Ames: I move that we change the lower limit to go through a ring ⅝" in diameter.

Motion put—lost.

President: The next subject is the question of changing "ballast gravel" to "ballast." Are you willing to let that stand as it is? The committee is willing to let that stand as now set up. The matter in the Manual is very largely set up, and to make any small changes that have no effect on the meeting, or import, would cost considerable money, and I do not believe any of us would be so technical that we would require it. The same will apply to cinder ballast, to be changed to cinders. The definition for sand is the same as adopted in 1909, so that unless there is any objection to that wording or definition, we will accept it as submitted by the committee. If there is no discussion on the definition of sand, we will proceed. The committee offers no recommendation for adoption, other than those submitted in the sub-committee A's report, adoption of Manual, the sub-committee B is simply submitted as a report. The other sub-committee's reports are submitted as matters of information, excepting the recommendation that has ben read by the committee this morning on the subject of gravel ballast. The joint sub-committees further recommend that investigations or tests be made, the expense of which is to be borne by the association, which would determine, if possible, the distribution of the stress in the ballast from the bottom of the tie to the bottom of the ballast and on to the sub-grade. Is there any further discussion on the committee's report?

Mr. Williams: Mr. President, I move that the recommendations of the committee be adopted.

Motion carried.

President: If there is no further discussion on

this committee's report, we will adjourn. I should have read a telegram from Mr. John B. Hammond regarding his inability to be present.

The following are the committee reports in which concrete was recommended to be used: Committees on Signs, Fences and Crossings, on Buildings, on Signals and Interlocking, on Uniform General Contract Forms. If, as in all probability will be the case, the reports of these committees are accepted, all the above-mentioned constructions will have at least a basis of concrete, and in many cases will be constructed entirely of that material.

A new signal light with concrete foundations and appliances is a feature of the show being held in conjunction with the convention.

Full details of these reports will be printed in a later issue.

### PITTSBURG QUARRY NEWS.

Pittsburg, March 17.—A. G. Morris & Son are shipping considerable limestone this month from their Butler county, Pa., quarries. They have recently completed extensive improvements to their plant and are looking for a splendid business from the county road people this summer.

The big quarries of the Pittsburg Limestone Company, which is auxiliary to the United States Steel Corporation, has started operations 20 miles south of Altoona, Pa. They furnish most of the limestone for the corporation's plants in the Pittsburg district.

The Bessemer Limestone Company recently elected these officers for the ensuing year: John Tod, of Youngstown, O., president; R. C. Steece, vice-president; C. C. Blair, general manager; John R. Rowland, secretary. The company's plants at Bessemer, Pa., were thoroughly investigated recently and are preparing to operate in full soon.

The Clydesdale Limestone Company has bought a pulverizing machine which it will use at its quarries near Ellwood City, Pa. Its business in powdered limestone is increasing rapidly and this year's outlook so far is excellent.

The Blair Limestone Company is being dissolved. B. J. Jones, Jr., and George M. Laughlin, Jr., of the Jones & Laughlin Steel Company, and H. F. Hetzel, are liquidating trustees.

The Beaver Valley Limestone Company, through Superintendent Robertson, reports orders on hand for at least six months. He is looking for the best summer's business for many years.

The Osborne Limestone Company has been formed at Butler, Pa., by J. W. and W. C. Oliver and Frank Hindman, of that place. It will have a quarry and shipping point in Butler county.

The Wheeling Limestone Company have had to suspend operations for a few days at their plant at Mount de Chantal, W. Va., because of a break in their tank which supplied water. A large force of men soon completed the repairs. The plant is now running full again.

The France Stone Company is arranging to develop a 100 acre tract of stone quarry land on the P. R. R, near Sandusky, O., which it has recently purchased.

The Cornog Trap Rock Construction Company has been formed by George W. Stine, George C. Fry and Harry T. A. Rodewalt, of West Chester, Pa., to quarry, crush and sell stone and concrete.

George B. Walmer, of New Cumberland, W. Va., has bought from the Englehart interests of Pittsburg the Ballantyne stone quarry equipment near New Cumberland. It is putting the quarry in good shape and reports excellent prospects for spring and summer business.

Plans are under way for the development of 100 acres of stone quarry land on the Pennsylvania railroad, near Sandusky, O., which was lately purchased by the France Stone Company.

The Keystone Quarry Company of Wilkes Barre, Pa., has been granted a charter, with a capital of $20,000.00.

The Ohio Sand & Stone Company, capital $10,000.00, has been organized at Youngstown, Ohio, by J. V. Murphy, S. L. D. Jackson, and others of that city, to mine silica sand on the J. & F. Division of the Lake Shore railroad.

The Bessemer Limestone Company, at a recent meeting, elected John Tod, of Youngstown, Ohio, president; R. C. Steece, vice-president; C. C. Blair, general manager, and John R. Rowland, secretary. Its plant is located at Bessemer, Pa., north of Pittsburg.

The Blair Limestone Company, Ltd., is applying for dissolution. Its members were B. F. Jones, Jr., and George M. Laughlin, Jr., of the Jones & Laughlin Steel Company, of Pittsburg, and H. F. Hetzel, of Pittsburg.

The Clydesdale Limestone Company has installed a big pulverizing machine at its quarries at Ellwood City, Pa. The company is well booked up with orders for spring trade.

### JOHN W. GATES ELECTED PRESIDENT.

Port Arthur, Texas, March 17.—John W. Gates, the steel magnate, who now makes his home in Port Arthur, has just been elected president of the Gulf Coast Good Roads Association. This organization has for its object the construction of a splendid system of highways in the Gulf coast territory of Texas, extending from Port Arthur on the east to Corpus Christi on the west. The building and improvement of more than one thousand miles of road are involved in the plans of the association. The new movement is the direct outgrowth of the propaganda for better highways which B. F. Yoakum, chairman of the St. Louis & San Francisco executive committee, has been industriously circulating in Texas during the last few years.

The Kittanning Brick & Fire Clay Company started its second plant at Kittanning, Pa., this week. It will have its entire operation in full heat by April 1. The company's orders recently in Chicago and New York have helped out nicely on its shipments.

### QUARRIES IN ILLINOIS.

Springfield, Ill., March 21.—The state of Illinois will get forty cents a net ton at any quarry owned and operated by the state for crushed stone used for joint state and township roads by the provision of a bill introduced into the Illinois legislature by Representative Reid. Both state and township must agree to the use of state stone and the fact must be so stated in advertisements calling for bids on material. The state may, in its discretion, furnish to any township applying therefor, the crushed stone required to build one mile of road, or less, not exceeding sixteen feet wide or more than twelve inches deep, free of charge on board cars at the state quarries. In the bill providing for a state engineer and the improvement of highways there is no apparent tendency to deprive the quarrymen of rightful business, the tendency being rather to create an open market.

Richard Egan, of Springfield, was awarded the contract for paving South Fourteenth street from Cook to South Grand avenue, at a price of $1.55 a square yard for paving, which will make 10,020 square yards. Specifications call for brick on a six inch concrete foundation, with sand filler.

The contract for building the Seventh Ward sewer at Rock Island was let to D. E. Keeler & Company, of Davenport, Iowa, for $55,697.

Arthur R. Niems Company, Chicago. Capital stock, $10,000.00. General contracting, construction, building and paving. Incorporators, Arthur R. and Arthur H. Neims and Thomas A. Dungan.

The demand for pulverized limestone for use as a fertilizer or corrector of soil acidity has been reaching Joliet quarrymen. The Western Stone Company and others put out crushed stone ranging from three to one-quarter inches, the latter of which is frequently pulverized enough to be available.

### WILL DEVELOP QUARRY.

Leander, Tex., March 20.—R. B. George, of Houston, Texas, has purchased the white limestone quarries of George T. Allen for $18,000.00. The new purchaser will develop the properties, hauling the product with a large traction engine two miles to a railroad until he can build a spur line.

West Tenth street, Sterling, Ill., probably will be paved with asphalt, brick or creosote blocks. A mile of hard roads with a concrete curb on each side is contemplated.

Contract for paving Alexander street, East St. Louis, Ill., was let to the O. T. Dunlap Company, of Edwardsville, Ill., for $16,063. The same company will pave Wimmer place for $17,726.

### WEST COAST QUARRIES.

San Francisco, March 16.—It is learned that the quarry site recently purchased by the Spreckels interests in the vicinity of the Cowell cement plant is not for the purpose of starting a competing cement mill, but to furnish lime rock for the Spreckels sugar refinery.

The Blue Rock Quarry Company, capitalized at $5,000.00, has been incorporated at Redwood City, Cal., by W. C. Peyton, W. D. Gray and Charles A. Gray.

G. B. Herington has given up his position as division engineer of the Southern Pacific Railroad at Sacramento to enter the service of the Mountain Quarries Company, which is installing a large plant on the American river near Auburn, Cal. The company is now erecting a lot of buildings, and has its crushing machinery, etc., on the ground, to be installed during the spring. A machine shop will also be installed.

Many of the rock quarries around San Francisco Bay and through northern California have been more or less hampered by story weather for the last few weeks, but as little material is required for construction work at the moment this has not caused much inconvenience. Considerable damage was caused by a slide at the plant of the Ransome-Crummey Company, near Elmhurst, in East Oakland, the tunnel being filled up and a toolhouse buried, but no other loss has been reported. Several important changes are taking place among the large rock-crushing concerns in the interior, and inquiries are up for quite a lot of machinery, though so far few firms have placed their orders.

The property of the Valley Contracting Company, at Oroville, Cal., has been transferred to the Natomas Consolidated, of California. The two concerns have been rather closely connected for some time past, but the present move concentrates all the business under one head. The property includes one of the largest rock crushing plants in northern California, in addition to important quarry rights.

Arrangements have been made for the expenditure by the state of $18,000,000.00 on new highway improvements during the next few years, and it is expected that work will start next summer. It now appears probable that convict labor will be used on at least a part of the work, as a bill for the employment of convicts at road work is now pending in the Legislature, and appears to meet with considerable favor. The bill also provides for the employment of convicts in the manufacture of concrete culvert pipe for use on the state roads.

The town of Chico, Cal., has let a contract for macadamizing six miles of streets to the Chico Construction Company at $25,000.00. The work is already under way, and is to be completed next June. It will require over 1,000 cars of rock.

W. E. Harris, E. P. Perry and T. H. Sentell have purchased the Mitchell quarry near Corona, Cal., and will install crushing and handling machinery with a daily capacity of 1,500 tons. The quarry produces porphry rock of good quality. The Santa Fe railroad will build a spur to the plant.

The San Diego Stone Company, operating two quarries near San Diego, Cal., is planning to install a No. 6 crusher and a pneumatic drill outfit at its Sweetwater plant.

The Mountain Quarries Company has given up the project of building an aerial tramway from the quarry to Auburn, as the Southern Pacific is building a branch line to the plant. The product is lime rock, which will be shipped to the cement plants at Suisun and Napa Junction.

The San Francisco Quarry Company has taken a $45,000 contract to build a rock training wall around Key Route Basin on the Oakland water front.

The city of San Francisco will spend $70,000.00 this spring in paving Mission street from Second to the waterfront with basalt blocks.

W. E. Vanderventer is figuring on starting a quarry at La Mesa Springs, Cal., for the production of paving blocks, to be shipped to San Diego.

Dean Rucker, who has been in charge of the Detroit offices of the Church Quarry Company at Detroit, Mich., left the employ of that concern on February 1.

J. H. Fry, who at present is at Toledo, will succeed Mr. Rucker.

The Development & Securities Company, of Long Beach, Cal., has purchased 200 acres of land between Redlands and Highlands and will erect a $100,000.00 rock crusher and artificial stone works. The work will begin in a short time.

Daniels, List & Douglass, of Anderson, Ind., were awarded contracts to pave several streets in Elkhart, Ind., for $47,280.

The contract for the foundations, including Raymond concrete piles, for an apartment house to be erected at the corner of North Charles and Reade streets, Baltimore, by the Riggs Building Company, has been awarded to the Raymond Concrete Pile Company, of New York and Chicago; E. H. Glidder and G. N. Fritz, architects. This company has also been awarded the contract for placing Raymond concrete piles in the foundations of an elevated railway siding for the Cudahy Packing Company, at Philadelphia; J. E. Otis, Jr., architect.

A large saving, both in cement and sand may be effected and a much denser concrete obtained if two or three different sizes of crushed stone are used, properly proportioned and mixed together.

# CEMENT

## Association of American Portland Cement Manufacturers

Meets Semi-Annually.

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### LEHIGH COMPANY MOVES TO CHICAGO.

The Indianapolis offices of the Lehigh Portland Cement Company, up to date the headquarters of the company, will be closed March 24, with the exception of a small branch office, which will henceforth be maintained at Indianapolis in the Traction Terminal Building. This office will be in charge of H. L. Scott. Another branch office will be opened in the Memphis Trust Building, Memphis, Tenn., in charge of S. J. Moss.

After the 24th of this month the main office of the Lehigh will be in Rooms 521-529 People's Gas Building, Chicago. The entire office force will be brought to Chicago from Indianapolis, and further strengthened by the addition of 12 or 15 more employees. Fred E. Paulson will have entire charge of the sales and traffic departments and W. E. Viets will be head of the financial and accounting end.

Mr. Paulson will be remembered as the energetic and competent sales manager for the company at Indianapolis. He writes that "breaking up one office and opening up another without a loss of more than 3 hours is going some." We jibe with him there.

It has not been fully decided by the company whether to maintain their present office at Cleveland, or move same to Columbus. This question will be decided on very shortly.

### CEMENT OFFICIAL GIVES SALESMEN DINNER.

One of the largest forces of cement salesmen in the industry is shown in the accompanying photograph. These men are the salesmen of the Canada Cement Company, Limited, of Montreal. The illustration shows the men at a dinner, given by the general manager of the company, F. P. Jones, at the St. Regis Hotel, February 23.

The impression seemingly prevailed in many sections that the Canada Cement Company had curtailed their selling force since the interests of the independent companies had been merged. This photograph should prove that such is not the case. In fact, the Canada Cement Company now has more travelers than the other companies had formerly.

One of the ways in which the officers of the company employ in getting into close touch with their sales force is by meeting them at these dinners and from all reports it is a pretty good method. Everyone is happy when there is a good table set and both employee and employer are in the mood for approachment. Not that this dinner was a business affair; in fact, the social side was always uppermost, but nevertheless there were some intimacies exchanged which sent every one present away with a little better understanding of what was needed to sell goods, than when he went in.

### CONSTRUCTION WORK BEGUN.

Oklahoma City, Okla., March 21.—The Choctaw Portland Cement Company, of Oklahoma City, has been granted a charter with a capital stock of $1,200,000.00. Construction has been begun at Hartshorne, Okla., upon one of the largest cement plants in the southwest. A stone crusher will be built in connection. The cement company will build a belt line three miles long to connect the plant with the Rock Island railroad. General offices of the company will be in the Insurance Building, this city. Officers are: President, C. B. Black, Hartshorne; vice-president, B. E. Allison, Kansas City; treasurer, E. H. Jayne, Oklahoma City; directors, E. T. Kirk, Maysville, Ky.; J. A. Henry, Altus, Okla.; J. B. Westbrook, Oklahoma City; H. J. Serwinsky, Hartshorne, and N. E. Tuell, Hartshorne.

### NEW YORK CEMENT NEWS.

New York, March 15.—During the latter part of February business was rather dull in the cement industry, but in the last two weeks it has strengthened considerably and the expectations among the cement manufacturers are that 1911 will be a banner year for the trade. The expected advance of 5 cents was announced during the interval, bringing the price up to 80 cents in bulk at the mill. This makes the new wholesale rate in the Metropolitan district $1.53 a barrel, although some dealers are still shipping at $1.48.

Local members of the trade when interviewed were generally optimistic regarding the outlook and were of the opinion that the summer and fall months will witness a large movement that will undoubtedly be heavier than at the corresponding period of last year.

"The volume of business is good," reported E. F. Miller, of the Lawrence Cement Company. "There has been a big improvement in building operations in the past two weeks and in the next month or so there will be undoubtedly a very large demand for cement and lime. The expected advance of 5 cents in cement went into effect March 1, but as yet manufacturers are delivering on old contracts at previous prices. About the first of April business will be transacted at the new price schedule, namely, 80 cents in bulk at mill, with 10 cents extra for bags and 25 cents for barrels."

W. H. Evans, representative of the McCormick Waterproof Cement Company, reported: "Business is rather slow just now, but we expect a heavy demand for our waterproofing compound in the early part of April. A large number of building specifications are ready, but for some reason or other they are being held up. As soon as they are released, as we expect they will be next month, the demand for cement should be enormous. The consumption of our product has increased to such an extent that we had to increase our yearly output from 3,000,000 to 6,000,000 barrels. We have contracted to supply our product to the Sage Foundation Homes Company, which is building a model suburban residential town in the suburbs of New York City. About 1,200 homes will be built. The buildings will range from one-family cottages to business blocks and cement will be chiefly used; in fact, cement will be almost exclusively used."

E. B. Morse, of the Frank B. Morse Company, followed: "Business was slow during the winter months, but during the month of March it has brightened up somewhat and we are fairly busy. From now on we expect the demand for cement to improve and during April and May hope to see building operations in full swing. The price of cement has been advanced 5 cents, which went in effect March 1. The product is now quoted at 80 cents in bulk at mill, with 10 cents extra for bags and 25 cents extra for barrels."

William C. Morton, of the Consolidated Rosendale Cement Company, stated: "Business has been rather dull of late, but should we have a continuance of good weather for a period of several weeks general conditions will improve in a large degree. Rosendale cement is quoted at 80 cents per barrel and the contract movement is quite up to the normal. Portland is quoted here at $1.48 in large quantities."

According to the statement of the Atlas Portland Cement Company during the eighteen months ended December 31, 1910, they shipped for the account of the United States government for use in the construction of the Panama canal about two million barrels of its product. Government chemists have notified John R. Morton, president of the company, that in the testing of their cement not one barrel was criticized or rejected.

An entire cargo of cement comprising 12,360 barrels, weighing 4,944,000 pounds, valued at $14,708.00, bound for Cristobal, Panama, and 66,760 bags weighing 6,676,000 pounds and valued at $26,704.00, for Colon, Panama, was shipped on the steamer Conway from New York during the last week in February. Another large cargo was cleared from this port on March 1 per steamer Cristobal, bound for Cristobal, Panama, amounting to 99,040 bags and 25,508 barrels, aggregating 20,107,200 pounds and valued at $69,981.00.

### CHICAGO CEMENT NEWS.

Chicago, March 20.—Everything is looking bright for the cement companies here this month. The trade in cement has started and is running along much more smoothly than was hoped for this early in the season.

At the present time prices are in a firm condition with a slight upward tendency, due probably to the fact that country dealers are rapidly moving their stocks and sending in orders for new ones. The local condition in general is good, as told by the cement men themselves.

A representative of the Chicago Portland Cement Company reported that trade was in very good shape. The demand, he said, was increasing in the country, and prices there and locally were steady and satisfactory. Because of the better weather in sight, he stated that this increase in trade would continue.

C. C. Quincy, western manager for the Atlas Portland Cement Company, said: "Business is very good, the demand all over the country is beginning to be strongly felt. Prices are remaining steady. The local and country dealers are beginning to show signs of moving stock and all indications are that trade will be very good this spring."

Blaine S. Smith of the Universal Portland Cement Company, stated: "Country dealers are stocking up early this spring in anticipation of a heavy demand by the small town trade, and by the farmers. As far as general conditions go, things are in very good shape. The cement business is in a very satisfactory condition, with all indications pointing to a year of heavy consumption by all interested. Stocks will commence moving freely in the near future. Local conditions are good and the indications are that building operations, both large and small, will be active."

Edward L. Cox, of the German-American Portland Cement Works, stated: "The general conditions are good, prices have been steady and on the increase. This month we have started actual deliveries. Earlier in the season dealers were stocked up heavily, and this stock is now beginning to move and inquiries are coming in continually. There is much side walk work going on in Wisconsin, but dealers in that state are always about a month behind others in starting heavy buying."

D. Richter, Chicago representative of the Alpha Portland Cement Company, said: "This year, from all indications, is going to be better than last. I have been up north for two weeks and have met optimism everywhere. Of course, the people in Northern Illinois, Wisconsin and northern Michigan will not buy heavily until lake navigation opens. All the buying they do now is for inside work. Indiana and Ohio are buying heavily. The local conditions are good. Prices are fairly firm, with a tendency to increase. The people I met on my trip seem to be figuring on buying more cement than they did last year, and if they do and with the increased prices, 1911 will be a fine year. The northern states will start buying next month."

SALES FORCE OF THE CANADA CEMENT CO., MONTREAL, QUE.

# SAND-LIME BRICK

**SAND-LIME BRICK—PROCESSES FOR ITS MANUFACTURE AND ITS IMPORTANCE IN FUTURE BUILDING OPERATIONS—BY C. A. ACKERLIND.**

* Paper read before the Swedish Engineers' Society of Chicago, by C. A. Akerlind, member of the society, consulting engineer, 664 Monadnock building, Chicago, Ill.

In razing ancient stone structures we generally find the mortar immensely strong, in many cases necessitating the use of explosives. The idea was therefore very near at hand: Why should it not be possible to produce artificial stone out of the material used for mortar in those ancient structures? In the erection of some of those buildings certain kinds of clays were used or asphalt, or cement, but the most common mortar used in less ancient structures was sand and lime, as is in common use in our days.

Before describing some of the different methods employed in past years in attempts to produce artificial stone, let us refresh our memories a little in chemistry bearing directly on the subject.

There was a period in the history of chemistry when the system was based on four principles or elements—fire, air, earth and water. A very strange phenomenon had for centuries puzzled those chemists, and that was the changed character of limestone after having been exposed to fire. The fire apparently went into the stone, for did not the fire and water fight when they came together? It was in 1755, Black, a noted chemist, demonstrated that "fix air" was driven out of the limestone by the fire, which discovery was hotly debated by contemporaries and finally accepted, with the result that the desire for researches was greatly stimulated, and the chemical science made more rapid progress than ever before, and the nature of the process in burning limestone to quicklime, "slaking" this quicklime to hydrated lime, mixing in sand to make mortar, and the final hardening of this mortar has long been known. As we all know, limestone is a carbonate of the oxid of the metal calcium; by heat the carbonic acid gas is driven off, leaving the calciumoxid, the commercial quicklime. This quicklime has a very strong affinity to water, and if satisfied in this respect it will absorb 32.2 per cent of water and then becomes hydrated lime, a perfectly dry powder. In this process of hydrating, the quicklime increases in volume 2½ to 3 times, depending on the composition of the limestone. This hydrated lime if kept dry will not be affected by the carbonic acid of the air, and as it is in this form harmless to transport and handle in marked contrast to quicklime, a very extensive industry in manufacturing this widely used material has sprung up in recent years, special machinery being used to accomplish the proper hydrating of the quicklime.

Let us now make lime mortar and see what takes place. Ordinarily the quicklime is slaked with an excess of water so as to form a paste or even a "wash." This paste or wash is then mixed with sand in the proportion desired, and is immediately used. At first a settling or drying takes place, but then a chemical change occurs, carbonic acid from the air combining with the oxide of calcium, forming a carbonate as it was in the limestone. In this process the water taken up at the hydrating of the quicklime is replaced by the carbonic acid. We remember that the quicklime absorbed 32.2 per cent water in its conversion into hydrated lime, and that this hydrated lime then was a perfectly dry powder. Nevertheless when the carbonic acid replaces this chemically combined water it again takes the form of moisture to be taken up by the air. This process is very slow, and to hasten it sometimes fire is built in the new house, not so much for the heat produced as for the carbonic acid generated by the combustion of the fuel.

Now then we started with limestone and through the several processes of burning, hydrating, mortar making and drying we again come to limestone—a durable, useful, building stone.

Why not make brick of lime mortar? This has been tried and may yet be practiced under certain conditions, but the process is necessarily very slow and better ways have been found.

The science of chemistry advanced rapidly in the XIX century, and as early as 1832 the idea was prevalent that silicate of lime was the very best cementing substance, and that it ought to be practicable to manufacture artificial stone with that medium.

Silicon is next to oxygen, the most abundant element in nature, and appears to hold a similarly important position in non-organic nature as carbon does in the organic.

Rock crystal is the combination of pure silica with oxygen. One of the important characteristics of silica is its fire resisting qualities and another equally important is the chemical combinations it may form with other substances like calcium carbonate, etc.

Prof. J. O. Rosenberg, of Stockholm, Sweden, in his comprehensive textbook on inorganic chemistry, presents a table more clearly illustrating the similarities and differences in the compositions of the common building materials, lime, plaster of paris and cement, than many pages of description could do, and I therefore take the liberty of reproducing that table here. The chemical formulas, those of you who are not chemists, can look up at your leisure.

1. Raw material: Lime, $CaCo_3$; plaster of paris, $CaSo_4$-2aq; cement, $CaCo_3$-$Al_2$ $(SiO_3)_3$.
2. The burning aims at: Lime, drive out $Co_2$; plaster of paris, drive out 2aq; cement, make $Sio_2$ soluble.
3. Temperature of burning: Lime, about 800°; plaster of paris, 120°; cement, about 1500°.
4. The hardening depends on the absorption of: Lime, $Co_2$; plaster of paris, crystallization; cement, crystallization.
5. After hardening the composition is: Lime, $Caco_3$; plaster of paris, $CaSo_4$-2aq; cement, $CaSiO_3$-$Ca_3Al_2O_6$-aq.

In 1832 a patent covering a process to manufacture artificial stone was issued to a Mr. Rangor in England. His method was to mix sand or silicious material with caustic lime, slaking with hot water and ramming the plastic mass into molds. This process, however, does not seem to have given entirely good satisfaction, and he later heated the whole aggregate and in that way secured a better chemical combination and a stronger stone. Several buildings put up with this stone are said to be still standing. In the United States attempts to make artificial stone were also made, but without marked success. To produce a stronger stone the inventor, a Mr. Frear, used shellack and exposed the mixture to hydraulic pressure of fifteen to twenty tons when in the mold. Smaller blocks made according to this process were ready for use in from three to four weeks, and larger blocks required a correspondingly longer period. After some time, however, this "stone" deteriorated, due, it is supposed, to the shellack used in the mixture. Two other Americans, Foster and Van de Burg, made artificial stone; Foster, by mixing slaked lime to the sand, and Van de Burg, unslaked. Van de Burg further used steam to assist the slaking and agitated the mass before pressing it into the forms. This man describes also various other methods of making stone. He mentions the use of an alkaline silicate as matrix, and proposed to keep the mixture in vacuity during the formative period to prevent the formation of carbonate of lime by combination between the carbonic acid of the air and the caustic lime, which action he believed would interfere with the production of silicate of lime.

Numerous attempts to produce building stone by purely chemical processes were made in Europe and the United States with more or less success, but it appears that the field has in late years narrowed down more and more to the manufacture of sand-lime brick for ordinary building purposes.

It is before mentioned that sand and lime were mixed like mortar, molded into bricks and then left to harden in the air by taking up carbonic acid in the same manner as ordinary mortar in a brick wall. This process was necessarily very slow and rather uncertain, as the climatic conditions had an important bearing on the final result.

Then came the low-pressure, steam-hardening method of manufacturing sand-lime brick. The molded bricks were introduced in a closed chamber and exposed to steam without pressure. This method produced silica of lime brick of good quality, but the chemical action took place slowly at this comparatively low temperature, and the plant therefore became very expensive for the manufacture of any considerable quantity of bricks.

The next step was to use boiler-shaped receptacles where the sand lime brick could be exposed to the more intense temperature of high-pressure steam. With this method the brick is hardened in 8 to 14 hours, while the low-pressure method required 2½ to 5 days.

The several stages in the manufacture of sand-lime brick can then be divided up into—

1. The preparation of the lime.
2. The mixing of the raw materials.
3. The conveyance of the materials.
4. The molding.
5. The hardening.

The quicklime is slaked by one of several methods, depending on the system employed in treating the materials before it reaches the press. Of late years the Kritzer machine for slaking the lime with steam has been widely used in large plants in the United States and Canada, and meets the theoretical requirements more perfectly than other machines where the lime is slaked in the open air, only enough water being added to leave the slaked lime a dry powder. It has before been stated that the quicklime will chemically absorb 32.2 per cent of water in its conversion into hydrated lime, the perfectly dry product of the hydrating machine. As long as this powder is kept dry the carbonic acid of the air does not affect it, and hydrated lime is nowadays transported and stored without difficulty or injury to the material. Hydrated lime is therefore becoming more and more a staple article of the market, replacing the quicklime, so dangerous to handle and store.

The sand used must of course contain silica, and the cleaner and sharper this silica sand is the better will be the brick made. Ordinary sand, if not too coarse or too much mixed with clay ,will do, however, and this makes the sand-lime brick available wherever there is a sand deposit, and these occur even more frequently than clay deposits now used for the manufacture of common bricks.

The conveyance and the handling of the raw material is readily accomplished by modern machinery and does not need any explanation here. The mixing of the ingredients is accomplished in accordance with the system used. Either the sand is dried and the mixing with the dry hydrated lime done in a long cylinder, the proper amount of water finally added to give the mass proper consistency for the molding press, or the sand and lime are mixed in a wet pan, or finally the sand and ground up quick-lime are mixed and placed into a silo, where moisture is added and the mass left for about 24 hours, when ready for the press.

The molding press is a powerful machine, usually of the toggle joint type, with a stationary table, but a machine with a rotary table is also used. The molds are lined with hardened steel plates to lessen the abrasion by the sharp end, and arranged so that they can be readily removed and readjusted to maintain the correct size of the brick. The capacity of these machines ranges from one thousand to three thousand bricks per hour, and the horsepower required is 10 to 25. For experimental work a screw press operated by hand is used, and small orders for ornamental or form bricks are also made in this machine.

The hardening is done in a steel cylinder about six feet in diameter and sixty feet long. This cylinder is provided with a permanent bottom and a removable head swung on a crane secured to the cylinder proper. The interior is provided with tracks continuous from the trackage in the rest of the plant and cars loaded at the molding presses are run in until cylinder is filled, when the opening is closed by the movable head secured to the cylinder by a series of heavy bolts. The steam is then let in and the pressure gradually raised to 100 to 150 pounds per square inch for a period of six to eight hours, when the hardening process is completed and the bricks ready to be taken out and transported to the place where it is to be used. Safety valves and steam gauges are, of course provided, as well as drainage pipes and the like.

This is in a general way the process of making sand-lime brick at the present status of the art, but of late years a process eliminating one of the more expensive operations and materially widening the field for the manufacture and use of sand-lime brick has been invented and developed in Sweden. The inventor is S. W. Berglund, an engineer of Sweden, and his success is briefly this:

Instead of the comparatively dry consistency of the mixture of lime and sand delivered to the molding press, Mr. Berglund adds sufficient water to make the mass flow into the molds, where it remains during the hardening process, after which the mold is removed, leaving the stone ready for use. The size of the stone possible to make with this process is only limited by the size of the hardening cylinder, and the greatest freedom of shape and ornamentation to meet architectural requirements is had. The hardening does not take more time than the ordinary brick and such molds can therefore be hardened together with those. The molds themselves can be made of sand-lime mass in as many pieces and of such shape as desired for larger blocks, while for ordinary bricks steel plates are used, piling one series of molds on top of another to the limits of the hardening cylinder. After the hardening these steel molds are picked apart, cleaned and used for the next carload of bricks.

It is claimed that this process of molding gives a more homogeneous and strong brick or block, and if odd sizes of brick is desired the molds cost but a trifle compared to the forms necessary for the press. It is also evident that with this new process it is possible to manufacture almost any article now made of Portland cement, like agricultural drainage pipes. Conduits for electric cables are successfully made by this process and are said to be just as strong as those made of cement. Of course, reinforcement by steel wire or wire netting can be done equally well with sand-lime mass as with cement. Building blocks now molded of cement require about three months for hardening, and must, during part of this period at least, be protected from rapid drying or freezing. The same blocks could be made of sand-lime mass and be ready to place in the building within a day or two.

In Sweden, where this cast sand-lime brick has been severely tested for more than a year, the new brick has proven itself superior as material for such parts of heating furnaces for which ordinary brick is used. In fact, when made of pure silica sand this brick has shown better qualities than ordinary fire brick used for the same purpose. So, for example, was it found practical to remove broken or burnt out fire brick from a furnace without first cooling the furnace down to the same degree as usual and to insert the new brick, immediately raising the temperature without these bricks cracking, which could not be done with the ordinary fire brick used. Whole furnaces were later built with this brick with very satisfactory results. There are numerous metallurgical operations where the temperature required is not excessive and where silica-lime brick can be used to advantage, and as this brick is considerably cheaper than the ordinary fire brick, the industry will profit by the use of the less expensive material, sand-lime brick.

## PROSPEROUS SAND LIME BRICK PLANT.

One of the recent additions to Sacramento's manufacturing institutions is the plant of the Sacramento Sandstone Brick Company, located at the mouth of the American river. Their products of brick and stone work are the only building materials that are strictly made in Sacramento, and the main cost in the production is labor. On all other building materials the chief item of expense is the raw material, for which the money is sent away from Sacramento. The factory was moved here from Monterey the latter part of last year, and the officers of the company are: A. G. Metz, cashier of the First National Bank of Monterey, president; A. M. Beebee, of the Iron Stone Company, vice-president; D. W. Carmichael, treasurer, and G. W. Bostwick, recently from the U. S. Brick Corporation of Michigan City, Ind., secretary and treasurer.

The company manufactures high-grade facing brick in various colors, also art stone work for the trimmings of buildings, etc. These brick, like all clay brick, are made in various grades of quality, but the plant here is making only the facing brick grade, believing there is sufficient market for brick of that sort, and they will make no attempt to enter or compete in the common brick market. Sandstone brick have been used in large quantities by the Southern Pacific Railroad Company, in government work, state and university work, etc. The local plant, when at Monterey, supplied many of its brick for buildings in different cities of California, such as the San Leandro high school, the large shops of the Pullman Car works at Richmond, the Presbyterian church at San Jose, and the Carnegie library at Salinas.

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C. E. Doak, Peter Rasmussen and others have secured control of a twenty-five acre tract of sand land near the Chicago & Great Western depot, Cedar Falls, Iowa, and will do a wholesale and retail business. Sheds have been erected.

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The Peoria Washed Sand and Gravel Company, of Peoria, Ill., has been incorporated with a capital stock of $5,000.00 to produce and market sand and gravel. The incorporators are William Swords, Jr., H. K. Patch and D. S. Brown.

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The Rock Island Sand and Gravel Company, of Rock Island, Ill., has increased its capital stock from $15,000.00 to $25,000.00.

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The Lincoln Sand and Gravel Company, Lincoln, Ill., resumed operations February 24, beginning with an output of ten cars a day. It is the intention to gradually work up to the capacity of twenty to thirty cars a day.

## NEW PRESSED BRICK COMPANY ORGANIZED.

F. H. Perry, of the Black Hills Pressed Brick Company, of Rapid City, S. D., has organized a company which has purchased the plant and property of the Colorado Brick and Artificial Stone Company at Colorado Springs, Colo. The new company has been incorporated under the name of the Colorado Pressed Brick Company. Mr. Perry is the president; W. J. Miles, of Gettysburg, S. D., vice-president; L. L. Stewart, of Colorado Springs, Colo., treasurer; M. B. Urquhart, of Denver, secretary; J. E. Stephenson, of Denver, sales agent. The head office will be at Denver and the plant is now in full operation. The sand is quarried from a mountain of pure sandstone at the foot of Pikes Peak, which is almost pure silica and makes a high-class brick.

## FOUR MILLION PER YEAR.

The Schultz Bros. Company, Ltd., of Brantford, Ont., Can., have been remarkably successful in the manufacture of silica pressed bricks. They have a capacity of four million per year. They say they are pleased with the headway being made in the sand lime brick business, as their bricks have stood the tests of several years and all conservative thinkers admit they are completely satisfied with their bricks. They may add a silo system before another year.

## GOVERNMENT STATISTICS.

Amongst the annual industrial reports issued by the United States Geological Survey recently is that bearing upon the production of sand lime brick, prepared by Jefferson Middleton. It covers the activities of the industry up to and including the year 1909. As compared with the year previous there was a distinct gain, but the value of the product did not reach the high water mark of 1907 by nearly $75,000. The record of values runs as follows: A steady growth from $155,000 in 1903 to $1,170,005 in 1906; in 1907, $1,225,769, which is the highest; 1908, $1,029,699; 1909, $1,150,580; and those who are best posted and have made unofficial calculations believe that the year 1910 will show no less than $1,400,000, thus setting a new high record.

The survey's report favorably recognizes the work of the American Association of Manufacturers of Sand Lime Products, and there can not be the least doubt that the carefully persistent and conservative work of the organization has counted in the main in the matter of building up the industry as a general proposition.

The sand lime brick must be considered as an established American industry. The test of time and multiplied experience with the material has made such a record that it is no longer sensible but absurd for anyone to offer the objections that were rife a few years ago. The question mark as to quality and adaptability is equally out of place amongst people of ordinary intelligence in matters relating to building materials.

The following comparative tables exhibit the operations for the years 1908 and 1909, and are taken from Mr. Middleton's work:

## SAND-LIME BRICK PLANTS COMBINE.

The Sand Lime Brick Company, of Philadelphia, has sold its plant to the Philadelphia Sand-Lime Brick Company, also of Philadelphia. The combined companies expect to manufacture 35,000 brick per day.

The New England Brick Company, of Hartford, Conn., will soon begin the manufacture of sand-lime brick of high quality, at Farmington. The company is now installing the necessary machinery at a plant on the New Haven & Northampton Line.

The new sand-lime brick plant of the Oklahoma Granite Brick Company, Oklahoma City, is now in operation turning out a high quality of sand-lime brick. The plant cost $60,000.00.

Oxford, Mass., has a new sand-lime brick plant, which is turning out 20,000 brick per day. This number can be easily doubled by running the modern machinery of the plant to full capacity.

John Stewart, of Mentone, Calif., owns a deposit of sand and gravel and small and large granite and gneiss boulders or crushed rock supply in the wash or river bed of the Santa Anna River, one and a half miles north of Mentone station on the Atchison, Topeka & Santa Fe Railway. He wants to lease this property and would like to hear from interested parties.

The Palmyra Sand Company has been incorporated at Buffalo, N. Y., with a capital stock of $50,000.00. The company will engage in the sand and gravel business. The incorporators were R. W. Eberty, J. M. Chinnen and M. G. Perry.

The Camden (Tenn.) Brick & Tile Company has commenced business, manufacturing tiling and brick of all kinds. Granberry Greer is the principal stockholder.

The Barbourville (Ky.) Brick & Tile Company has begun the installation of new machinery and will double its capacity. The business of the company has been improving for several months.

The Oliver Springs (Tenn.) Brick & Tile Company has resumed operations at its plant after having been shut down for several months. The indications are for a good demand for fire brick from now on, the company reports.

West Salem Hollow Brick & Tile Company has been incorporated at West Salem, Ill., capital stock $2,400.00. Incorporators, Paul Grace, William Harrison and W. O. Mallinson.

N. E. Smith, of the Harvel Brick and Tile Company, of Harvel, is chairman of the new organization of Southern central Illinois brick and tile manufacturers who have organized to promote the industry in general. Joseph Mitchell, of the Oland Brick and Tile Works at Witt, is secretary. Other charter members are D. Davis, Illinois Brick and Tile Works, of Litchfield; F. C. Reinka, of Harvel; F. J. Luking, of Raymond; S. D. Price, of Waggoner; F. E. Fleigel, of Morrisonville, and H. P. Brown, of Palmer. Another meeting will be held March 30, probably at Litchfield.

W. U. Turpin, manager of the Lehigh Sewer Pipe and Tile Company, of Fort Dodge, Iowa, is active in promoting a new commercial boosting organization for that city.

The Butler Brick and Tile Company, of Butler, Ind., has been incorporated with capital stock of $7,000.00. Incorporators, Jeff N. Doyle, E. A. Higgins, Herman Grosscup and B. Countryman.

## CLAY IN ILLINOIS.

Springfield, Ill., March 21.—Senator H. M. Dunlap, of Savoy, has introduced into the Illinois legislature a bill providing for an appropriation of $21,000.00, or as much thereof as is necessary, for a structure at the University of Illinois, Urbana, suitably arranged and equipped with kilns, furnaces and stacks required in the study of the heat treatment of clays, glass and cement products. In addition it appropriates $24,000.00, or as much thereof as is necessary, for a building suitably equipped with laboratories for general work in ceramics and connected with the present structure used for that purpose. The preamble to the bill states that the abundance of clay in Illinois and the notoriously great fire losses, the demand for workmen versed in the technology of this field, make it a profitable investment for the state. The general university appropriations bill introduced by Senator Dunlap carries appropriations of $25,000 each for an addition to the Ceramics Building and a new kiln house.

## WHITE HALL DRAIN TILE CO.

White Hall, Ill., March 21.—Organization has been effected by the newly incorporated $40,000 White Hall Drain Tile Company with the following officers: President and general manager, H. C. Morrow, White Hall; first vice-president and treasurer, C. B. Stahl; second vice-president, J. T. Gallaway, Greenfield; secretary, E. C. Pearce, and assistant secretary, Carl Lowenstein. Additional directors are A. P. Grout, Winchester, Ill.; H. O. Tunison, White Hall; J. A. Kirby, Jerseyville; R. W. Green, Kane; W. A. Grandy and H. A. McHarry, Mason City, and H. E. Sieberns, Peoria. A new plant will be built here and in operation for the making of drain tile by July 1.

*Production of sand-lime brick in the United States in 1908 and 1909, by States.*

1908.

| State. | Number of operating firms reporting. | Common brick. Quantity (thousands). | Common brick. Value. | Front brick. Quantity (thousands). | Front brick. Value. | Fancy brick. Quantity (thousands). | Fancy brick. Value. | Blocks, value. | Total value. |
|---|---|---|---|---|---|---|---|---|---|
| Arizona, North Dakota, and Washington | 4 | 1,031 | $8,230 | 140 | $3,100 | ..... | ..... | ..... | $11,330 |
| Arkansas, Kansas, Minnesota, Nebraska, South Dakota, and Texas | 13 | 26,609 | 174,798 | 1,712 | 20,392 | ..... | ..... | $800 | 195,990 |
| California | 6 | 3,732 | 27,223 | 1,908 | 27,671 | (a) | (a) | ..... | 56,494 |
| Colorado, Idaho, and Montana | 5 | 1,930 | 20,505 | 2,184 | 28,857 | (a) | (a) | 3,000 | 52,377 |
| Delaware, Maryland, and Virginia | 6 | 6,805 | 41,171 | 514 | 6,338 | (a) | (a) | (a) | 116,182 |
| Florida | 5 | 21,014 | 117,040 | ..... | ..... | ..... | ..... | ..... | 117,040 |
| Georgia, Kentucky, and Mississippi | 5 | 6,093 | 37,557 | 1,035 | 11,423 | ..... | ..... | ..... | 48,980 |
| Ohio, Illinois, and Wisconsin | 6 | 6,074 | 35,814 | 376 | 3,258 | ..... | ..... | ..... | 39,072 |
| Indiana | 5 | 9,792 | 48,413 | (a) | (a) | ..... | ..... | ..... | 54,413 |
| Iowa | 3 | 4,701 | 33,784 | (a) | (a) | ..... | ..... | (a) | 42,861 |
| Michigan | 10 | 21,997 | 131,827 | (a) | (a) | ..... | ..... | ..... | 138,809 |
| New Jersey | 4 | 840 | 6,270 | 1,192 | 14,549 | ..... | ..... | ..... | 20,819 |
| New York | 7 | 7,965 | 52,389 | (a) | (a) | (a) | (a) | ..... | 57,189 |
| North Carolina | 3 | (a) | (a) | (a) | (a) | ..... | ..... | ..... | 14,000 |
| Pennsylvania | 5 | 6,899 | 57,812 | (a) | (a) | ..... | ..... | ..... | 64,123 |
| Other States[b] | ..... | 1,450 | 10,500 | 3,040 | 32,116 | 98 | $2,515 | 72,347 | (c) |
| Total | 87 | 126,932 | 803,333 | 12,151 | 147,704 | 98 | 2,515 | 76,147 | 1,029,699 |
| Average value per M | ..... | ..... | 6.33 | ..... | 12.16 | ..... | 25.66 | ..... | ..... |

[a] Included in other States.
[b] Includes all products made by less than three producers in one State to prevent disclosing individual operations.
[c] The total of other States is distributed among the States to which it belongs in order that they may be fully represented in the totals.

*Production of sand-lime brick in the United States in 1908 and 1909, by States*—Continued.

1909.

| State. | Number of operating firms reporting. | Common brick. Quantity (thousands). | Common brick. Value. | Front brick. Quantity (thousands). | Front brick. Value. | Fancy brick. Quantity (thousands). | Fancy brick. Value. | Blocks, value. | Total value. |
|---|---|---|---|---|---|---|---|---|---|
| Arkansas, Kansas, Minnesota, Nebraska, North Dakota, South Dakota, and Texas | 13 | 35,802 | $232,564 | 1,811 | $18,805 | (b) | (b) | ..... | $251,546 |
| California | 3 | (b) | (b) | (b) | (b) | ..... | ..... | ..... | 30,056 |
| Colorado, Idaho, Montana, and Washington | 6 | 4,734 | 42,426 | 3,693 | 62,646 | (b) | (b) | ..... | 105,734 |
| Florida | 6 | 11,466 | 71,748 | (b) | (b) | ..... | ..... | $550 | 77,076 |
| Georgia, Kentucky, and Mississippi | 4 | 5,983 | 36,481 | ..... | ..... | ..... | ..... | ..... | 36,481 |
| Indiana | 3 | 6,840 | 32,550 | (b) | (b) | ..... | ..... | ..... | 32,800 |
| Iowa | 3 | 4,794 | 34,025 | (b) | (b) | (b) | (b) | (b) | 48,210 |
| Delaware, Maryland, North Carolina, and Virginia | 6 | 1,560 | 10,573 | 1,475 | 13,570 | ..... | ..... | 98,091 | 122,234 |
| Michigan | 11 | 34,217 | 207,082 | (b) | (b) | ..... | ..... | ..... | 218,226 |
| New Jersey | 3 | (b) | (b) | (b) | (b) | ..... | ..... | ..... | 21,925 |
| New York | 7 | 11,716 | 77,842 | 1,216 | 12,120 | (b) | (b) | ..... | 90,402 |
| Ohio and Wisconsin | 5 | 7,758 | 50,335 | (b) | (b) | ..... | ..... | ..... | 53,635 |
| Pennsylvania | 4 | 10,441 | 59,453 | (b) | (b) | ..... | ..... | ..... | 62,255 |
| Other States[c] | ..... | 3,482 | 32,256 | 4,629 | 46,499 | 192 | $5,209 | 5,755 | (d) |
| Total | 74 | 138,793 | 887,335 | 12,824 | 153,640 | 192 | 5,209 | 104,396 | 1,150,580 |
| Average value per M | ..... | ..... | 6.39 | ..... | 11.98 | ..... | 27.13 | ..... | ..... |

[a] Including door and window sills and building blocks.
[b] Included in other States.
[c] Includes all products made by less than three producers in one State to prevent disclosing individual operations.
[d] The total of other States is distributed among the States to which it belongs in order that they may be fully represented in the totals.

# Lime

## The National Lime Manufacturers' Association

Meets Semi-Annually.

OFFICERS.

William E. Carson, Riverton, Va. ..... President
J. King McLanahan, Hollidaysburg, Pa. ..... 1st Vice-President
H. A. Buffum, Rockland, Me. ..... 2nd Vice-President
Geo. E. Nicholson, Manistique, Mich. ..... 3rd Vice-President
F. K. Irvine, Chicago ..... Secretary
C. W. S. Cobb, St. Louis, Mo. ..... Treasurer
Wm. E. Carson, Chas. Warner, Walter Sheldon, ..... Executive Committee

The Bluewater Lime Company, of Bluewater, N. Mex., are contemplating improvements at their plant and will, in all probability, put in a new kiln during the coming season. Their present equipment is four tons per day. Their limestone quarry produces a light blue stone, which has an analysis of 98 per cent calcium carbonate.

The Langton Lime & Cement Co., of Salt Lake City, Utah, have a capacity of about 1,200 bushels of lime per day. They are interested in the subject of gas fire kilns and will probably change their method of burning and install this system.

The Green Mountain Lime Company, of Middlebury, Vt., is going to put in some new kilns and install producer gas, or some other method of coal firing. They will also put in new quarry tracks and cars and methods of measuring temperature, draft and analyzing gases. They have a capacity of 100,000 barrels of lime per year.

The Northwestern Lime Company, of St. Paul, Minn., who are large wholesalers in building material, have recently opened a retail department and will make an aggressive fight for business along these lines.

The Mayville White Lime Works, of Mayville, Wis., are having a locomotive especially built for their use, and contemplate putting in a rotary screen and bins. They have an output of 80,000 barrels of lime and 22,000 tons of stone.

The Stearns Lime Company, of Danbury, Conn., are going to install a new crushing outfit for coarse material. They have an output of twenty-two tons of lime and four tons of crushed stone.

The New York Lime Company, of Natural Bridge, N. Y., who are large lime manufacturers, having a capacity of between forty and fifty tons daily, are opening a new quarry and expect to increase their output to 100 tons daily.

The Toronto Lime Company, of Limehouse, Ont., Can., say that business has been good with them during the past season and that the outlook for the coming year is very good. They contemplate putting in tracks and cars in order to facilitate the handling of their product from the quarry to the kilns.

The Vanderhoof Lime Company, of Hamburg, N. J., are installing a hydrating plant and hope to have the same in operation by April 1.

S. W. Shoop & Co., of Altoona Pa., who are contractors for the building of lime kilns and equipment, state that the prospects are very encouraging for this year's business. They contemplate building two new designs of kilns during this year.

Eugene Y. Sayre, vice president and general manager of the Improved Equipment Company, the well-known combustion engineers of New York, was in Chicago last week attending the convention of gas men.

### DEMAND FOR LIME SLOW.

C. C. Bishop, secretary of the Marblehead Lime Co., Chicago, stated, when asked how conditions were in the lime industry: "Trade is very quiet this month, in fact, there is very little doing, but this is to be expected at this time of the year. We do not sell any lime in Chicago, all our business coming from chemical trade in the country, and that is pretty slow. There has been no noticeable change in prices during the past month, and I believe things lately are looking a little better, and will pick up rapidly."

### DEMAND FOR HYDRATE GROWS.

Charles Kritzer, of the Kritzer Company, designers and builders of hydrating plants, Chicago, has recently returned from a trip down East. He said that in that section of the country, as well as in the West, the demand for hydrate lime is growing rapidly and people are becoming more and more familiar with the Kritzer process. The Lee Lime Company, Lee, Mass., have just placed an order for a new hydrating plant, for which the plans will be completed in about two weeks.

Inquiries concerning the Kritzer hydrating plants are coming in all the time and Mr. Kritzer said he believed this would be a very good year for his company. The plant of the International Lime Company installed by the Kritzer Company at Sumas, Wash., is now completed and will be in operation next month.

### HYDRATED LIME MAKES FRIENDS.

E. J. Stewart, the Kansas City manager of the Marblehead Lime Co., in discussing the subject of hydrated lime in the West said: "Our hydrated lime is gradually working into this western territory and making friends. It has been up-hill work, and like all new things has taken time to educate the trade. The more progressive dealers are fast realizing the advantages of hydrated lime and are conscientiously endeavoring to convert their trade. The Marblehead Lime Co. have been remarkably successful in building up a trade on hydrated lime, but as they were pioneers in this market they encountered some opposition. This opposition is gradually fading away and the demand is becoming stronger all the time." This same condition holds true with nearly every section of the country in which hydrated lime has been introduced, but when once it takes hold there is no changing back to the old methods.

### WILL ESTABLISH LIME KILNS.

The Columbus Limestone Products Company, Columbus, Ohio, which was incorporated recently with a capital of $100,000.00, will begin work at once developing a large tract of stone land, just across the river from Arlington and adjoining the property of the Columbus Stone Company.

The company has organized by the election of J. M. Sherman as president, A. L. Ralston as vice-president, and J. M. Stone as general manager. Mr. Stone is one of the best stone men in Ohio, having for years been connected with the quarry companies at Delaware and Marion. He will remove to Columbus and devote his time to the new company. The company expects to put in two large crushers, one for the crushing of ballast stone and the other for crushing fine stone, for cement work.

In addition the company expects to revive an old industry, that of lime burning. At one time several attempts were made to burn lime from the Columbus limestone, but the product proved to be what the plaster men called "hot lime," which meant that it set so quickly that it could not be used. Now, with the use of mixing machines, this class of lime can be used with good effect and it is believed that a flourishing lime industry can be built up here. The company expects to erect modern limekilns and make a try at the lime business as well as in the stone trade.

### ST. LOUIS LIME NEWS.

St. Louis, March 17.—"The spring season," said Secretary Healey, of the Glencoe Lime & Cement Company, "is opening well. Referring to our new brand, 'Alca' plaster, a local party who is plastering the first house in the city on which it has been used, says that not in his long experience on a job of plastering has he seen it equalled in plasticity, smooth working qualities and ease of application. The outlook for the building material people is good and it is starting in better than we expected. We have rented space in the exhibition room of the Building Industries Association, and will place in our booth some specimens of work in our 'Alca' plaster and hydrated lime."

Representatives of a large eastern plaster manufacturing firm are negotiating with the Gypsoil Company, of Los Angeles, regarding the establishment of a plant on the latter concern's property at Moapa, Nev.

The Radnor Lime & Stone Company has been incorporated at Radnor, Ohio, with a capital stock of $10,000.00. The incorporators were W. Guy Jones, Edgar Jones, Jennie F. Jones, W. E. Harris and Jessie B. Harris.

The Yadkin Lime Company has been incorporated at Live Rock, N. C., with a capital stock of $125,000.00. The incorporators are A. J. Wellington, Charles K. Messick, Arline F. Messick.

The following officers were elected at the annual meeting of the Waite Lime Company, of Glen's Falls, N. Y.: President, F. W. Waite; vice-president, T. S. Coolidge; secretary, H. J. Russell; treasurer, S. B. Goodman. These officers and J. Irving Fowler are directors of the company.

Hydrated lime in the mason's mortar saves a sly dollar here and there that helps out the contractor's profits as the job goes along. All the wide awake contractors are next to this—even the mossbacks are beginning to catch on.

The Franklin Lime Company has been incorporated at Jackson Center, Pa. The incorporators are M. M. Werlin, Frank C. Pearson, H. G. Phillips, David O. Hardsock and F. M. Mettler. They will erect lime kilns at Jackson Center.

The Austin White Lime Company, of Austin, Tex., has increased its capital stock from $50,000.00 to $100,000.00.

The Thomas Millen Company, of Jamesville, N. Y., has completed construction work on its new cement mill, at a cost of $20,000.00. The new plant will be used in connection with the company's other Jamesville properties.

The Limestone Products Company has been incorporated at Columbus, Ohio, to quarry and market stone products. The capital stock is $100,000.00. The incorporators are J. M. Stone, B. F. Waples, A. L. Ralston, H. C. Sherman and R. S. Senter.

Hon. A. H. Longino, of Jackson, Miss., former governor of Mississippi, owns a large deposit of buff colored limestone in the southern part of the state, within quick and easy reach of New Orleans, Mobile and other Mississippi and Louisiana points. He is anxious to develop this property and would like to get in touch with someone who will take an interest in same and develop it. The opportunities here are many. The quarry is suitable not only for building stone, but the by-product could be used for crushed rock and for the manufacture of lime.

R. B. George, of Houston, who recently purchased the Allen limestone quarries, situated near Leander, Texas, is preparing to develop the property on a large scale. He will use traction engines to transport the stone to the railroad loading station, two miles, pending the construction of a spur track to the quarries.

Because of lectures and instruction given by the Agricutural Experiment Stations in Illinois, on the use of limestone dust as a fertilizer, the authorities of the stations believe that in 1911 the demand in this state alone will be for 100,000 tons of dust, or over 2,000 car loads. In the year 1910 450 car loads of dust were shipped from the crushing plant at the Southern Illinois penitentiary at Chester alone. Men connected with the prison industry still agree that the private firms cannot at present compete with the present price of 60 cents per ton on board cars at the prison. They have no doubt that the industry will become so extensive that it cannot be handled by the prisons and that the state will discontinue the manufacture and leave the industry to private capital.

### WANT PRICE ON CRUSHER.

The Monarch Lime & Stone Company, Hooker, Ga., capital stock, $6,000.00, will operate quarry and lime kilns. This company is in the market for a new stone crusher and wants immediate prices on the same. The officers are: W. E. Thompson, president; L. H. Thomas, vice-president; Frank Taylor, secretary-treasurer; Howard Turner, manager.

### A PLEASANT CALLER.

The Wheeling Limestone Company, of Wheeling, W. Va., who are in the business of crushing and pulverizing limestone, having a capacity of 400 tons of crushed stone and 100 tons of pulverized stone, expect to install a screen or blower system to screen the stone to 100 mesh. In speaking of ROCK PRODUCTS, they say that it is a pleasant caller every month.

The Jackson Stone Company, of Covington, O., expect to put a traction spur into their plant. They already have a steam road. Their full capacity at the present time is 300 yards of crushed stone for every ten hours.

# SAND AND GRAVEL

## PITTSBURG SAND AND GRAVEL NEWS.

Pittsburg, March 18.—The Buckeye Sand Company is making regular shipments of molding sand from its plants at Conneaut and Zanesville, Ohio, and New Cumberland, W. Va. It reports business moving along very nicely but not as yet up to 1910.

The National Sand & Gravel Company announces that bidding is somewhat late this year on street work, comparatively little having been let in Pittsburg this year. Some good government jobs are coming on to the boards shortly. Its work along the rivers will be resumed soon and the outlook for the year is fairly good.

The Ellwood Sand Company has started its sand plants at West Ellwood Junction. Its officials believe that 1911 will be a better year in totals than last year, but that more of the business will be done during the latter part of the year.

The Dresden Sand Company is shipping considerable molding sand from its plant at Dresden, O. Its trade with the foundries is rather slow for this season, owing largely to the fact that the heavy foundries are doing little business. Many of them stocked up heavily last year and now have sufficient sand on hand to carry them well up into the summer. Competition is still close and some firms are doing business along profitable lines.

The Rodgers Sand Company is working three boats on the Monongahela river. It has recently repaired all its sand boats and diggers and is getting ready for a brisk trade which will keep them all busy after April 1.

The Iron City Sand Company has two diggers at work on the Ohio river. Its reports are beginning to come in much better and the outlook for spring trade is fair to good.

The Ohio Sand & Stone Company, capital $10,000, has been organized at Youngstown, O., by J. V. Murphy, S. D. L. Jackson and others of that city. It will dig sand near Youngstown and will build a plant at once for that purpose.

Thomas L. Liggett, of Pittsburg, has started to build a sand plant at Queens Junction, Pa., which will employ 20 men and have a capacity of four cars a day.

The Enterprise Sand Company is doing a very nice business in molding sand in Chicago and Indianapolis points and also in Buffalo, N. Y., and it reports business opening up in good shape and looks for much improvement later in the spring.

## NEW YORK SAND AND GRAVEL NEWS.

New York, March 15.—The local sand and gravel trade is marking time more or less and dealers are of the opinion that there is little likelihood of any startling developments occurring until the summer is well advanced or nearly over. Spring is rather a quiet period with the local trade, but as the subway excavating will probably begin in the early fall there will be from that time on a very prosperous period for sand and gravel men.

N. J. Timberman, general manager of the Goodwin Sand and Gravel Company, said: "We do not look for any large amount of business in the early spring, as that season as a rule is not a busy one with us. But we expect a heavy demand for sand and gravel during the late summer and early fall months. The excavating for the Tri-Borough subway will be completed about that time. Then we will get busy and not only us, but also the cement, lime, plaster and other rock products concerns. The price of sand is quoted here at 25 cents per cubic yard, and for gravel 80 to 85 cents per cubic yard, according to quality, in scows alongside dock. These prices are very low when you stop to consider that we have to land at the dock the sand and gravel from the pits which are located from 16 to 20 miles from the city."

Mr. Ely, of the Crescent Sand and Gravel Company, added: "Business in the sand and gravel line was very good during the past month and it is the best we had in two years. The outlook is bright and we expect a busy and a prosperous season. We are quoting sand at 40 cents per cubic yard."

The Kansas City Rock & Sand Company has been incorporated at Kansas City, Mo., with a capital stock of $5,000.00. The incorporators are Joseph T. McGraw, Henry McGraw and George Brindle.

## WEST COAST SAND AND GRAVEL NEWS.

San Francisco, March 16.—The California Materials Company has had a large sand and gravel pit near Niles, Cal., in successful operation for the last six months, and is preparing to make extensive improvements. The present equipment was installed at a cost of about $75,000.00 and it is planned to add $125,000.00 more to the investment, replacing the present elevators by a complete conveyor system.

The California Sand & Gravel Company has been incorporated at Los Angeles, with a capital stock of $200,000.00, by F. W. Hammett, J. W. Holder, F. Holblit, C. V. Holder and R. M. Hamilton.

The Portland Sand Company, of Portland, Ore., has let a contract to the Portland Shipbuilding Company for the construction of a new type of ladder dredge, to be used in taking sand and gravel from the bottom of the Willamette river. The hull alone will cost $17,000.00, being 36 by 105 feet.

## TIOGA GRAVEL COMPANY.

Houston, Texas, March 17.—A syndicate of Houston men, consisting of C. L. Dwyer, George K. Force, K. C. Barkley and A. D. Anderson, and E. S. Brasher, of Tioga, La., have formed what is called the Tioga Gravel Company, Ltd., with a capital stock of $200,000.00. The company has purchased the Brasher gravel pit, situated near Tioga, La., and is preparing to operate it on a large scale. Embraced in the holdings are 2,300 acres of land. A complete plant for the washing and screening of gravel will be installed, and a short line of railroad will be constructed to give the pit a direct transportation outlet.

## CONTRACT AWARDED.

Austin, Texas, March 18.—The Texas Building Company, of Fort Worth, has been awarded the contract by the board of commissioners of Williamson county to build $150,000.00 of macadam highways in the Taylor precinct of that county. The Taylor and Rockdale public road is to be macadamized at a cost of $2,000 per mile. It is provided in the contract that 2,250 cubic yards of gravel are to be used in the construction of each mile of road, with a rebate of 75 cents to the cubic yard where the above amount is not used. The Texas Building Company has established a branch office at Taylor, with W. T. Montgomery in charge as manager.

## SAND AND GRAVEL DEVELOPMENT.

Watertown, S. D., has a large and growing industry in the worked sand and gravel business. The Kampeska Materials Company there have an output that reaches close to the $200,000.00 mark annually. Kampeska Lake has one of the finest deposits of sand in both Dakotas for every purpose.

The Kampeska Materials Company now loads about 2,000 cars of sand each season and this output is being largely increased as the quality of their product is being recognized. The supply in the lake is practically inexhaustible, and the company has installed all the latest and most modern appliances for handling this commercial product. The company deals in screened sand, gravel and pit run, which is shipped to all points in South Dakota and some portions of Minnesota. Aberdeen receives all her supply of sand from this place and as high as four or five solid trains of sixteen to twenty cars have been consigned to Aberdeen. Large shipments are made to Huron and Redfield, and as far west as Gettysburg and east to many points in Minnesota.

The daily capacity of the plant now located at Lake Kampeska is 1,000 yards of sand. The managers of the company are contemplating increasing the capacity in a short time and will install a set of screens for separating the various grades. They are in the market for screens, pumps, crushers, etc., a hoisting engine and a skid derrick.

Maurice Bowman, of Bowmanstown, Pa., who has a sand-stone quarry, the output of which he utilizes by grinding the same into sand, is contemplating the addition of some machinery to increase his output. His present capacity is from fifty to one hundred tons per day.

Lifting gravel from a depth of about five hundred feet by means of compressed air is soon to be attempted on the property of the Crowley Brick Company, near Crowley, La. A pipe and device, such as are used in bringing oil to the surface in wells in Texas and Louisiana, are being installed by L. L. Lyons and John Burgin, who are experienced men in oil lifting operations. It is claimed that the gravel can be lifted from this great depth at comparatively small cost. The material will be used in the construction of concrete walks, building blocks and for other purposes.

## 2,000,000 YARDS OF SAND USED.

Sand, the basis of all concrete and of most plasters, and gravel, the larger particles of concrete for foundations have been used in New Orleans in increasing quantities for the past several years. The sources of supply are Profit Island, situated in the Mississippi river, 112 miles by rail from New Orleans; the streams of St. Tammany parish, Brookhaven, Miss., and Pearl river, the boundary stream between Louisiana and Mississippi. The Feliciana Sand and Gravel Company is now making preparations to ship gravel from its pit in the West Feliciana and a new concern, the Leaf River Gravel Company, will soon be in the business. The J. W. Thompson Gravel Company, which controls Profit Island, the Jahnicke Navigation Company, operating principally in St. Tammany, the Southern Gravel and Material Company, with pits at Brookhaven, Miss., and the Louisiana Sand and Gravel Company, with pits at Hattiesburg, are the producers at present.

In 1906, 1907 and 1908, about 150,000 cubic yards of gravel and twice as much sand was used. The sewerage and water board's pumping and filtration plant and the slips at Chalmette were the big works of those years. In 1909, 160,000 cubic yards and the same proportion of sand were used. Paving increased the consumption.

The Profit Island people supplied about 30,000 yards for Carrollton avenue alone. In 1910 paving was again the "principal consumer." The total was 200,000 yards, with the same double proportion of sand. The postoffice, Cottam's warehouse, Metropolitan Bank, Westfeldt building, Loyola College and a lead factory were other large constructions that helped raise 1910's figure.

The price has been steadily lowered for the past five years. Gravel that cost the consumer $2.10 five years ago can be bought for $1.50 per cubic yard in 1911.

The Southern Wisconsin Sand & Gravel Company has been incorporated at Janesville, Wis., with a capital stock of $5,000.00. The incorporators were S. W. Rotstein, A. A. Rotstein and C. M. Reeder.

The Union Silica Sand Company has been incorporated at New York, with a capital stock of $1,400,000.00. The incorporators were G. G. Stegler, R. C. Lupton and H. W. Nock.

A certificate of dissolution was filed by the Austin Sand & Gravel Company, of Austin, Tex., recently.

The Warren Sand & Gravel Company has been incorporated at Phillipsburg, N. J., with a capital stock of $50,000.00. The incorporators were Jacob A. Miller, William A. Stotz and Henry H. Rupp. The company will operate sand and gravel pits, stone quarries, etc.

The James Harrigan Company has been incorporated at Buffalo, N. Y., with a capital stock of $25,000.00. The company will deal in sand, gravel, lime and cement. The incorporators were J. E. Harrigan, F. A. Lehr and H. E. Gaffney.

George A. Rubin and C. A. Carlson, of Rockford, Ill., have installed new machinery on a tract of twenty acres three miles east of Roscoe, and will open a wholesale and retail sand business. A fine quality of sand especially adapted to concrete work has been secured. Charles E. Anderson, of Rockford, is owner of the tract which Messrs. Rubin and Carlson have secured for a royalty.

Chris Storm succeeds William Wrightson in the sand and gravel business at Batavia.

The Utica Fire Sand Company, of Utica, Ill., has been incorporated to quarry, manufacture and sell silica sand and building materials. The capital stock is $30,000.00. The incorporators are William B. Cunningham, John M. Quinlan and J. J. Neary.

Trenton Sand and Gravel Company has been formed at Trenton, Ohio. Capital stock, $25,000.00. Incorporators, F. M. Longnaker and others.

A steam shovel and hoisting engine has been placed in the gravel pit owned by Phinney Smith at Cedar Falls, Ia. The industry has a capacity of twenty-five cars a day.

The Peoria Washed Sand & Gravel Company, of Peoria, Ill., has been incorporated. The capital stock is $5,000.00. The incorporators are D. S. Brown, H. K. Patch and Wm. Swords, Jr.

The Rock Island Sand & Gravel Company, of Rock Island, Ill., has increased the capital stock from $15,000.00 to $25,000.00.

# "ALCA" LIME

"TRADE MARK"

Gives the long sought, reasonably-quick-hardening lime mortar necessary in modern bu lding construction. For interior and exterior work. Makes every mortar (excepting white coat) needed in a building. Preserves metal lath or iron work. Will not be damaged by water. Permanence, strength and plasticity.

## BERKELEY HYDRATED LIME

Scientifically hydrated fresh burnt HIGH CALCIUM lime; free from all impurities; can be kept indefinitely. An impalpable powder ready for immediate use. IT'S ALL LIME.

## SECURITY PORTLAND CEMENT

ALL THAT THE NAME IMPLIES. For strength and durability it is unequaled. Every Barrel Guaranteed.

*INTERESTING BOOKLETS FREE*

## SECURITY CEMENT & LIME CO.

Oliver Building
PITTSBURG

Equitable Building
BALTIMORE



## Shipping Facilities

which are unequalled, the strategic location of our plants with reference to freight transportation, our enormous storage capacity, our methods of manufacture which represent the highest development in Portland cement making, the use of the purest and most uniform of raw materials, and our strict compliance with all contracts are the important factors in the growth of our output from 32,000 barrels in 1900 to 8,000,000 barrels in 1910.

**Universal Portland Cement Co.**
**Chicago—Pittsburg**
***Annual Output 10,000,000 Barrels***



THE
# Standard Brands
OF
PORTLAND CEMENT

**Lightest in Color**
**Highest Tensile Strength**
ALWAYS UNIFORM

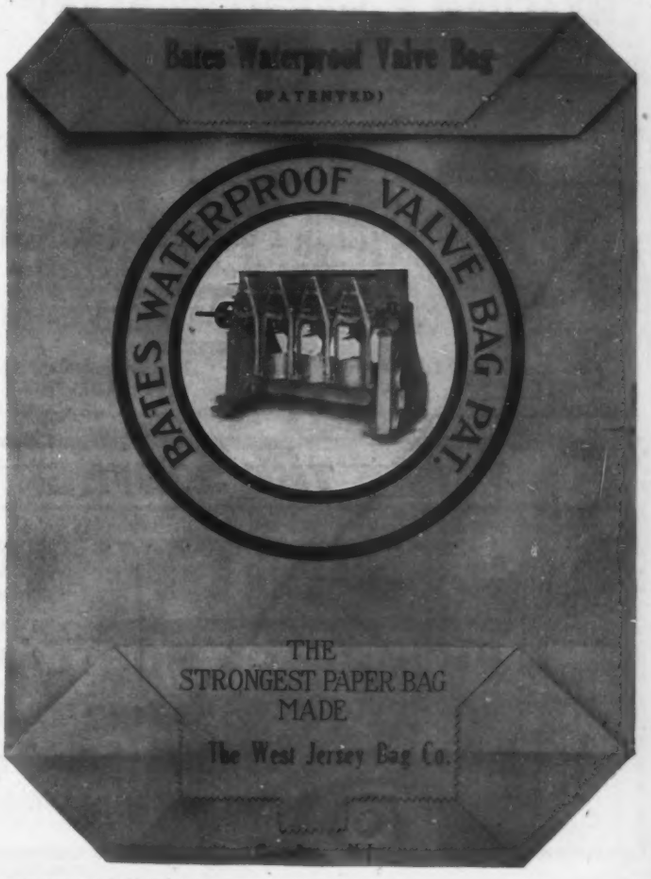
Always the same high quality. Prompt shipment guaranteed and made possible, as each mill is located within switching limits of the two greatest railroad centers of the West. You are assured of your orders being promptly filled.

SALES OFFICE:
Liggett Bldg., St. Louis

SALES OFFICE:
Long Bldg., Kansas City

MANUFACTURED BY
## Union Sand & Material Co.

**ST. LOUIS** Liggett Bldg.
**KANSAS CITY** Long Bldg.
**MEMPHIS** Tenn. Trust Bldg.

# ONE SURE PROFIT

THE amount of profit that the masonry contractor can make on stone and brick foundations and wall work depends entirely upon the speed with which the work can be done, and this is largely determined by the convenience with which the mortar particularly can be handled at the job.

## Brick Laying Mortar

When made of Utica Hydraulic Cement, is cheaper than any other kind in first cost and it economizes at the job every hour. It never works "short" under the trowel and it is ready for use as soon as the sand and water are mixed.

## Utica Hydraulic Cement

By the high quality of the masonry mortar it produces, is actually in the foundations of all Chicago's great wealth. No other cement can make a mortar as good as **Utica,** and for this special purpose there is none that can approach it for economy. The cement is just right, as proved by a record of three-quarters of a century, and every bag and every barrel is guaranteed.

**ANY DEALER CAN SUPPLY YOUR NEEDS, OR SEND YOUR MORTAR AND CEMENT SPECIFICATIONS TO**

**Utica Hydraulic Cement Co., UTICA, ILLINOIS**

**MEACHAM & WRIGHT COMPANY**

**CEMENT**

**CHICAGO**

**Saylor's Portland Cement**

Oldest American Portland
Used by the United States Government since 1876

**COPLAY CEMENT MANUFACTURING CO.**

SALES OFFICES:
Fifth Avenue Building, NEW YORK CITY
Pennsylvania Building, PHILADELPHIA

**"WOLVERINE"**

The Alright Cement

MADE RIGHT SOLD RIGHT
WORKS RIGHT
WEARS RIGHT

The Best Is None Too Good For You. Insist Upon

**"WOLVERINE"**

Write for Booklet and Quotations.
Factories at Coldwater and Quincy, Mich.
Capacity 3500 Daily.

**WOLVERINE PORTLAND CEMENT COMPANY**

W. E. COBEAN, Sales Agent, Coldwater, Michigan
Main Office, Coldwater, Mich.

***THE SOUTHERN STAR HAS RISEN***

# "TRINITY" IS TRIUMPHANT

**A HIGH GRADE PORTLAND CEMENT OF UNIFORMITY**

**MADE BY THE**

**SOUTHWESTERN STATES PORTLAND CEMENT CO.**

**GENERAL OFFICE: WILSON BUILDING, DALLAS, TEXAS**

## "S-A" GRAVEL PLANTS

in all parts of the Country are producing for the owners

## THE MAXIMUM PROFITS

S-A MFG.CO

Clean Sharp Separation of the Gravel and continuous everyday reliability of the machinery are the characteristics of all plants which we equip.

Get Our Ideas before you specify. We have had long experience and big success.

We furnish the complete line of

**Elevators, Conveyors, Screens, Settling Tanks and Transmission Equipment for all Gravel Plants.**

"The Gilbert screen—a secret of success.

## Stephens-Adamson Mfg. Co.

**AURORA, ILL.**

**BRANCH OFFICES:**

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50 Church St., - NEW YORK CITY

**AGENTS:**

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H. E. Leland, - - 11 Fremont St., San Francisco and 415 E. 3rd St., Los Angeles

## Cement Troubles

There is a sure way to get rid of your cement troubles—use Superior always. As a true Portland Cement, it may be relied on to make perfect concrete. It out-tests the "Standard Specifications" on all points, but especially in dust-like fineness and less than 1% magnesia. Superior has no peer as a low magnesia cement. You run no chance of high magnesia with Superior. This is a vital element in permanent work. Our latest free publication "Superior Catechism No. 7" tells why. Write for it.

**Union Trust Bldg., Cincinnati, Ohio**

**JUSTUS COLLINS, President**

**The Superior Portland Cement Co.**

## OTTAWA SILICA CO.
## Ottawa, Ill.

**Washed-Steam Dried and Screened**

# White Sand

Unexcelled for
- Facing Concrete Blocks
- Ornamental Concrete Stone
- White Plaster
- Roofing
- Exterior Plastering
- Sawing Stone and Marble, Etc.

**Analysis 99.90%**

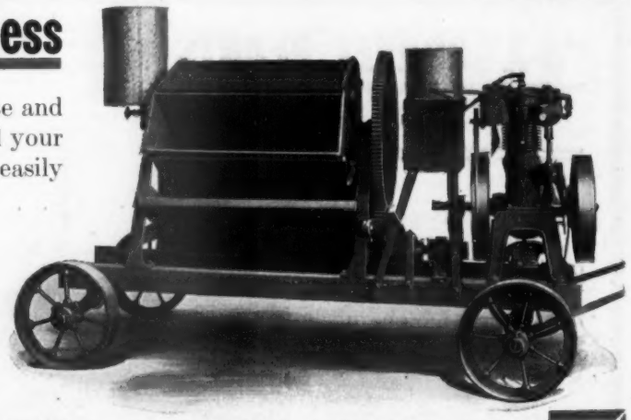
**Prices, Freight Rates and Samples on Application**

**Shipped in Paper Lined Box Cars or in 175-lb. Bags.**

You can order less than a carload, in fact shipments as small as five 175 lb. bags can be delivered economically.

LARGEST SHIPPERS OF WHITE SAND IN THE UNITED STATES

# Mixers That Get You The Business



Are the "Northwestern" kind. They give you the **best** concrete and the most concrete in the **shortest time**—enable you to outbid your competitors—earn **big profits.** They are economical in cost—easily operated—simple in construction—speedy—very durable.

**Guaranteed in Detail No Money Down Ten Days' Trial**

We back our goods with a satisfaction clause and make **you** the judge. Remember we are concrete machinery experts and have the largest factory in the world devoted to the manufacture of concrete machinery. You buy your goods at the lowest possible price and at so much per pound. Any necessary parts can be replaced promptly and shipments made the **same day** the order is received.

**GET WHOLESALE PRICES ON "NORTHWESTERN" MIXERS OF ALL STYLES AND SIZES**

We have a mixer adapted to **your** particular work and to fit your purse—Batch Mixers, Continuous Mixers, Paddle Mixers, Hand Mixers, Combination Power Mixers, all kinds. No matter what your line of work—contract, block making, tile work, sidewalk, piers, foundations—we can furnish you the mixer that will require less men and less labor to operate it and will cause you less trouble. Get our prices. **You pay too much if you pay more than we ask.**

**YOU NEED OUR BIG FREE ILLUSTRATED BOOK ON CONCRETE MACHINERY**

It describes everything required in concrete construction—block machines, brick machines, post machines, silo machines, ornamental moulds, pier moulds, tile moulds, gravestone and burial vault moulds, concrete workers' tools, cinder crushers, gasoline engines—everything in the concrete machinery line. It is an encyclopedia of what **you ought to have** at the prices you ought to pay.

Send for this valuable Book **to-day. It will save you a good many dollars,** And let us know what line you are interested in. We may be able to give you information that will help you in business. Write us **now**—while you have it in mind.

## Northwestern Steel and Iron Works

**910 Spring Street - - - - - EAU CLAIRE, WISCONSIN**

# FISHACK WALL PLASTER, "Of Course"

MR DEALER:—

Ask your PLASTERERS what kind of WALL PLASTER they prefer and if they have ever used FISHACK WALL PLASTER, that will be their answer. You wonder why. Well, we will tell you.

"FISHACK WALL PLASTER is manufactured under the supervision of the MESSRS. FISHACK, who are PRACTICAL PLASTER MEN, having worked at the trade themselves previous to engaging in the manufacture of HARD WALL PLASTER, so they know the kind of EASY WORKING AND FREE SPREADING MATERIAL that will give RESULTS and please the PLASTERERS."

Don't you see the advantage you will have over your competitor if you handle FISHACK WALL PLASTER? You know how easy it is to sell a material that is called for by your customers.

WRITE US AT ONCE for our Descriptive Booklet and Prices, or, better still, SEND US AN ORDER AND LET US PROVE IT.

## THE FISHACK GYPSUM COMPANY

PLASTER MILLS: Toledo, O., and Ft Wayne, Ind. GENERAL OFFICE: TOLEDO, O. GYPSUM MINES AND MILL: Gypsum, O

REMEMBER, if it is ANYTHING in the line of HARD WALL PLASTER or GYPSUM PRODUCTS, we can supply you.

**"STAG" BRAND**

MANGANESE STEEL

## Wearing Parts for all Crushers

**JAW, CHEEK AND TOGGLE PLATES**

**MASON SEGMENTAL HEADS**

FOR ALL SIZES GYRATORY CRUSHERS

SPUR AND BEVEL GEARING—LONG WEAR AND NO BREAKAGE

FOR CEMENT MILLS AND GYRATORY CRUSHERS

**STEAM SHOVEL TEETH POINTS and BASES**

KOMINUTER PLATES

**REVOLVING SCREENS**

**EDGAR ALLEN AMERICAN MANGANESE STEEL CO.**

Works—Chicago Heights, Ill.; New Castle, Del.
General Office—193 Michigan Ave., Chicago, Ill.
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TRADE MARK.

**PERMANENT and THOROUGH** Water-proofing of Cement Work results from the use of

## Maumee Compound

SPECIFICATIONS AND SAMPLES ON REQUEST

**The Maumee Chemical Co.**

403 ST. CLAIR BUILDING

TOLEDO, O.

# Concrete

### THE SHOW FEATURE.

The show season is practically over, as there are only one or two shows to be held and they are more in the nature of building material shows than exhibition of concrete machinery and cement.

The evolution of the show feature has been slow. It began when a few machinery and cement manufacturers had rooms in a hotel in order to be near the convention. The next step was to hire a small hall, and each year this hall has had to be larger in order to accommodate the growing number of exhibitors. The climax was reached last year, when Madison Square Garden, the greatest exhibition hall in New York City, was the scene of one of the most successful shows ever held in any industry. The Chicago show, following closely on its heels, was equally as great an exhibition. Instead of everybody being satisfied, however, there seems to be a growing dissatisfaction among the exhibitors. This culminated in an organization formed by the manufactures of machinery and equipment following the Chicago show. If they expect to hold an independent show we question whether they would be any better off, because they would have to have rules and regulations just the same as those laid down by the Cement Products Exhibition Company.

If every exhibitor were allowed to do as he pleased, we can easily imagine what a terrible mess it would be.

The exhibitor of machinery and equipment maintains that the education of the general public is merely incidental and that they are paying too high a price for general publicity. They maintain that the cement companies should bear the brunt of this expense themselves since they are the ones who profit mostly thereby. This is a subject which is open to question. The cement companies have spent thousands of dollars in arranging attractive displays designed to educate the general public in the uses of cement.

It is doubtful if the general public would be attracted to a show made up entirely of machinery and equipment. The Cement Products Exhibition Company have realized that in order to engage the public's attention they have to give them a show which combines the spectacular in a happy blending with its educational features. They have given the exhibitions an environment which appeals to the public taste. That they have succeeded goes without saying, as both the New York and Chicago shows showed by their gate receipts that many thousands of people paid admission to see these exhibitions. If the exhibits were not attractively arranged and if the spectacular features were eliminated, the general public would lose interest and the attendance would fall off.

The exhibitor of machinery equipment and supplies must not lose sight of the fact that they must succeed in interesting new people each year or the industry will remain at a standstill. A certain amount of money must be charged off to the general advertising account. Just how much is a point which is more than ever engaging the attention of exhibitors today. Some of the largest manufacturers of machinery equipment and supplies spend thousands of dollars going to the various shows and some of them maintain that the business will not bear the expense. Yet they cannot afford to quit for fear of being placed among the "has beens," and they feel that they must go to the shows or else lose out entirely.

We have heard the remark that ROCK PRODUCTS, being a stockholder in the Cement Products Exhibition Company, would naturally favor this company. This is true only in a sense. ROCK PRODUCTS became a stockholder in the Cement Products Exhibition Company because it seemed to be the logical solution of the problem of holding shows, and since the great majority of the men in the game seem to favor shows, we gave our support to the organization. If a better plan can be evolved, we will be the first to give it our support. We do not believe that the cement manufacturers themselves can hold a successful exhibition any more than we believe that the manufacturers of machinery equipment and supplies can, but we do think that the combination of these interests can give successful exhibitions, as they have in the past, combining the educational with the spectacular in such a fashion as to not only arouse public interest but increase the sale of cement and machinery.

Should either branch of the industry undertake to hold shows, they would have to have an organization, maintain an office, have a manager, and an efficient office force, just as is maintained now by the Cement Products Exhibition Company. To do this costs money, and were either branch to attempt to hold shows by themselves, the expense of the organization and management would be almost as great as it is now, and probably not so effective.

We believe that the machinery men should cooperate with the cement manufacturers as they have in the past.

The Cement Products Exhibition Company have laid down rules and regulations for the conduct of the shows which have not met with the approval of some exhibitors, but as in every undertaking, the majority should rule, and if the majority should favor changes, then let the changes be made. A fair and open discussion of the matter can do no one any harm.

We open our columns to the machinery manufacturers as well as the cement manufacturers, and hope they will state their views fearlessly and openly, so that all may know just how the situation stands.

Much progress in the industry has been due to shows. No one will question this and for this reason we believe that the show idea is a good one. There are as many opinions as to how to hold a show and where to hold a show as there are exhibitors.

We maintain now and always have, that there are too many shows, but there are a great many exhibitors who want shows held in all the larger cities and who think that certain sections of the country are being neglected.

We believe that if a commission were formed, made up of the representatives of all the organizations, that this governing body could then decide these questions and that all interests would be properly taken care of.

### EDUCATING THE GENERAL PUBLIC.

Since our editorial last month regarding educating the general public to use cement, we have received several letters from our subscribers, who indicate that we have struck the popular key-note. Theoretically, the proposition is all right, but it does not work out in practice.

We have known of several dire failures which resulted from too little education on the subject of how and what to do in order to make a good concrete job. For instance: A farmer conceived the idea that he wanted to build a silo and he secured some booklets and literature on the subject from one of the cement companies. It was all written very plainly and it seemed to be the simplest matter in the world to go ahead and construct the silo according to the plans and specifications as outlined. The farmer got along very well, although the cost was materially enhanced by the mistakes which he made in cutting his lumber. He lost considerable time, also, by having workmen who did not quite catch the idea of what he was trying to do, but finally the silo was built and, to all intents and purposes, it was all right, but the first hard freeze caused it to break, and out rolled his corn. Now he is the sorest man in the world and will never believe that concrete is fit for anything, not even to put a floor in his pig-pen. One trouble with this particular case was the fact that the sand was not washed. This seemed to be a very simple part of the proposition, and was not emphasized in the plan and specifications printed in the book. The sand was taken from the bed of the creek and contained a certain quantity of potash which had been washed out from one of the neighboring fields where some fertilizing had been done, and, in addition to this, the gravel was coated with clay. Of course, anyone who understands concrete will readily appreciate the fact that this sand would not make good concrete, and if the farmer had made no other mistake than this one, that would have been sufficient to have caused a failure.

We know of other instances of people who have tried to build sidewalks, floors, and in some cases barns and hen-houses, and who have made failures, due to the fact that they did not understand the nature of concrete. We believe that the safest plan is to educate the general public up to the point of wanting to build out of concrete, and let it go at that. Let him consult his contractor and architect in his home town, or his nearest village, and let them do the work. They are fully qualified to take the plans and specifications and carry them out, and if there is a failure made they are the ones to blame, but the percentage of failures will be very small in comparison with the number now recorded.

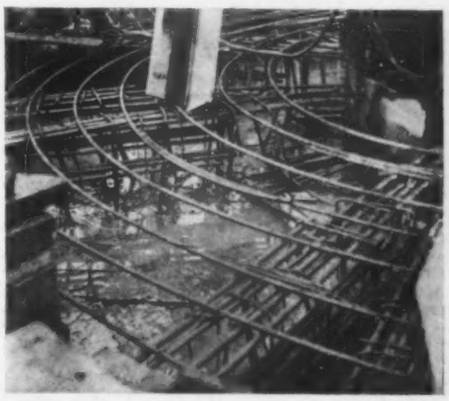
---

W. A. Wheeler, of Atkinson, Neb., who is a concrete block manufacturer and who does general concrete work, is contemplating the erection of a cement block building two stories in height, 20 x 50 feet, with all cement floors. He is in the market for reinforcement to be used in this building.

### REINFORCED CONCRETE DOMES.

(Continued from Page 3.)

1:2:4: of Red Ring Portland cement, Mississippi River sand, and Meramec binder gravel 1¼ inch and under in size.



Compression ring at crown of inside shell of main dome, crown end of cantilever rib arches on which rest the columns supporting, 40 feet above, the lantern weighing 250,000 pounds.

The architects for the building were Barnett, Haynes & Barnett; the contractors, J. C. Robinson & Son, and the consulting engineers were the Reinforced Concrete Company, Brussel & Viterbo.

### SOUND THE RIGHT NOTE.

We are in receipt of a letter from James R. Shearer, of Goldfield, Ia., who says: "On page 23 of your last issue you sound the right note in regard to the farmer and many other men. They often think they know more than the mason and contractor and will tell us just what to do, and if it proves a failure, we get the blame. I have put in some sidewalks under orders from such men and they are a failure. Do they take the blame? No, I get it. The cement manufacturers are to blame; they encourage the farmer and others to do their own work and not to hire men who are skilled and who make this a profession."

The article referred to was an editorial in which we emphasized the fact that the literature which was being scattered broadcast by the manufacturer of cement sometimes results in a manner totally unlooked for. It all goes to prove that a little education is sometimes a dangerous thing. It is one thing to encourage the use of cement and another to instruct a man how to use it. Few men are able to use cement properly from reading the literature on the subject. The best method, in all cases, is to consult the local contractor who has money invested and who has devoted his time to investigating and perfecting methods, and who is better qualified on account of his experience to do a satisfactory piece of work.

### WILL BUILD SECOND PLANT.

The Concrete Structural Tile Company, of Montreal, Que., has recently acquired a very extensive sand bank, about thirty miles from the city, and there they will construct their second plant, which will have a capacity of about 6,000 tiles per day, made by the Pauly system.

This concern reports a splendid business in the tile line, as done in the past season, in the operation of their initial plant at Montreal. They have furnished the tiles for a very large number of partitions, foundations, etc., besides for a number of the principal residences of modern construction that have been built there.

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The Perfection Concrete Company, of Winnipeg, Man., and the Ritchie Contractors' Supply Company, of Vancouver, B. C., are equipping plants to manufacture Pauly tile in their respective localities.

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The Rosedale Cement Brick and Stone Company, of Kansas City, Mo., has been incorporated with capital stock of $50,000.00. Incorporators, Joseph E. Campbell, F. B. Pelletier and John J. Riggs.

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L. T. Kenny and Son, of Hawarden, Ia., manufacturers of cement building blocks, brick and ornamental work, are installing a car system and a new 12 h.p. engine. Their present output is 50,000 blocks.

# THIRD ANNUAL

## Cement Show Held in St. Lawrence Arena, Toronto, Canada, Well Attended—Splendid Papers Presented.

Toronto, Canada, March 13.—At eight o'clock in the evening, March 6, the doors of St. Lawrence Arena, in which the third annual cement show of Canada was held, were thrown open to the public. A large first night crowd soon filled the arena, which looked with pleasing eyes upon the exhibits, which seemed incompatible amidst a setting of bunting and floral decorations, and the strains of patriotic music of the famous band of the Forty-eighth Highlanders.

Shortly after 8 o'clock the Hon. George P. Graham, Minister of Railways and Canals and honorary president of the Canadian Cement and Concrete Association, arrived at the show, escorted by Alfred Rogers, of Alfred Rogers, Limited. He was received at the booth of Alfred Rogers, which was a veritable bower of palms and flowers, by Peter Gillespie, president of the Canadian Cement and Concrete Association. The machinery was temporarily hushed and Mr. Gillespie in fitting and happy speech introduced the Minister of Railways and Canals, who had come to Toronto especially to preside at the inauguration ceremonies in connection with the exhibition.

"The cement business is a hard business," said Hon. George P. Graham in his opening remarks, "and to say a few words about it will be a hard job." In the course of his speech he pointed out the immense possibilities of the cement industry in Canada and its marvelous growth in the last ten years an increase from a decade ago, of 400,000 barrels of cement to the production of nearly five millions of barrels of cement last year. He gave the Canadian Cement Association much praise and credit for doing immense good in the concrete field, in educating cement users how to mix and apply it. He said that book knowledge and practical knowledge go hand in hand, which had brought about specializing in manufacture and application. Canadian cement is all of good quality and new uses are being found for it daily, widening its scope so rapidly that today the supply in Canada is not equal to the demand. Its use is not only marked in railway and public improvements, but is equally so in the towns and villages. He sounded a note of warning, saying that the public learned, through hard experience in several cases, while concrete properly mixed and applied is the best building material to be used, if ignorantly and improperly handled, may produce the worst kind of trouble.

"The government now," he continued, "is considering the matter of extensive harbor construction at Halifax and the use of cement as material, even to the pilings. In the erection of the Quebec bridge 5,000 cubic feet of cement will be used in each caisson. The government itself will be a customer for 280,000 barrels of cement at least this year. Another probable field for concrete is in the matter of railway cross ties, a number of experiments having been made which bid fair to displace the wooden tie. The fact is, the possibilities which open up daily to the Canadian cement industry are so varied as to be practically beyond calculation. It would not even be a matter of surprise to me if my friend Alfred Rogers would insist on having the hurdles constructed of concrete over which he takes his 'high jumpers.'" He concluded by expressing his pleasure in assisting the opening of the cement show, which he then declared formally opened and wished it the greatest of success.

The cement show closed Saturday night, March 11. The daily attendance was not so large as on the opening night, but much interest was manifested in the various exhibits by visitors from all parts of Canada, and on the whole the exhibitors' anticipations were realized.

The sessions of the third annual convention of the Canadian Cement and Concrete Association were held in the Assembly Room of the Engineers' Club of Toronto. The sessions were not well attended, but what they lacked in numbers was made up in enthusiasm. Some very able papers were read.

## TUESDAY AFTERNOON SESSION, MARCH 7

The meeting was called to order by President Peter Gillespie, of Toronto, at 2:30 p. m.

President Gillespie then delivered his annual address, which follows:

### FAILURES AND THE LESSONS WHICH THEY TEACH.

By Peter Gillespie, President.

It is a truism often repeated that the public has a short memory. The lessons to be derived from great disasters are soon forgotten except by a very small number. The fatal Iroquois Theater and Collinwood School disasters of a few years ago, so costly in child life and so much in the public mind for short intervals, showed the necessity of safeguarding the occupants of public buildings. For a time our civic authorities were active in having places of public entertainment carefully inspected. Much was heard for a season about fireproof curtains, accessible exits, fire drill and fireproof schools, but soon the public relapsed into its old ruts. Inspection became less searching and the authorities more forgetful and the public continues to run daily the same risks that the victims of these disasters ran. It sends its children to the same schools and attends itself the same places of public worship or entertainment and only becomes conscious as to the chances it is taking when some other horrible calamity occurs. Truly, the public has a short memory.

It is chiefly because humans are humans and not machines that we continue to take chances. A machine can be constructed to do a given thing in a specified way an endless number of times. Whether its work be punching or drilling or cutting, it does it with machine-like precision. It never tires, never grows careless and is never actuated with a spasm of over-zeal or indolence. It is never tempted to slight its work. It is never influenced by the desire to make excessive profits and never knows the flattery of the multitude or the sting of adverse criticism. It never forgets, never flatters, never tempts, never cajoles, never bluffs and never pleads. But men are differently constituted. They possess the human traits. They are influenced by example, possess passions, emotions and cherish hatred, remember injuries and forget the lessons which great crises in their experience ought to impress on them. The attention of engineers, architects, builders and building departments has been called to the lessons which are taught by the failures of structures designed and erected by them or under their supervision. It is not that the field is a new one that this paper is devoted to so hackneyed a topic, but to emphasize once again: First, those elements which have contributed to failures, and, secondly, those corrective or precautionary measures which will tend to prevent their recurrence.

HON. GEO. P. GRAHAM, MINISTER OF RAILWAYS AND CANALS AND HONORABLE PRESIDENT CANADIAN CEMENT & CONCRETE ASSOCIATION.

Especially in the use of reinforced concrete has the general reader's attention during the past five years been called to a rather large list of failures, all of them more or less serious and not a few of them having fatal results. Reinforced concrete has been comparatively new in the building art and in its fabrication is very different from other materials with which the constructor is familiar. Unlike steel or wood, its strength increases with age. It is poured into forms, at which time it is plastic and has to be sustained until it acquires sufficient strength to support itself. It consists of two materials, not one, and since the disposition of these, with respect to each other, vitally affects the strength of the product, exercise for great care in this placing is necessary. More, perhaps, than any other building material is this true—it possess great capacity for injury in the making and placing. Following are cited a number of failures of reinforced concrete structures which, during the past twelve months or so, have occurred, and reference to which, in the press, has come to the writer's notice. They represent typical cases, and an examination of the list will enable us to classify the causes under a few general heads.

The comparatively recent announcement that the great dam across the Colorado river at Austin, Tex., is to be rebuilt has served to recall its failure over a decade ago. It will be remembered that that failure was announced to the world at first as a serious reflection upon the engineering profession because some hydraulic engineers of eminence had been connected with the work. Subsequently, however, when the whole history had been investigated it was found that the authority of the engineers had been interferred with to such an extent by the city officials in control that their responsibility had been practically nullified. Indeed, one prominent engineer had resigned rather than have his name further connected with a work over which he had no control.

On February 28, 1910, a reinforced concrete arch of three spans over the Flat Rock river at Edinburgh, Ind., collapsed during an unusually heavy flood. The design had been furnished by a well-known bridge company, but the bridge commissioners, in their desire to economize and with a wisdom commensurate with their experience in such matters, decided to omit the piling underneath the abutments and to carry them instead to a somewhat greater depth. And so the bridge was built. The materials supplied and the workmanship throughout seemed to be excellent, but in the season of heavy flood the piers were undermined by scouring and the structure collapsed. There does not appear to be any other cause of failure than the insufficiently supported piers, and the responsibility of course must rest on those who ordered the modification of the original plan.

A concrete dam at Fertile, Minn., was washed out by floods early in April, 1910. The trouble is attributed to the fact that the foundations were not laid sufficiently deep to prevent scouring and undermining, and failure ultimately ensued.

The partial failure of the Bayless reinforced concrete dam at Austin, Pa., in January, 1910, exemplifies a trouble of a slightly different character. The dam was completed in December, 1909, at a cost of upwards of $70,000.00. On completion it was observed that there was one small crack 1/16 inch wide, extending from the top of the dam to the ground level. Subsequently others similar in appearance developed, and during a heavy freshet on January 23, 1910, a section of the dam between vertical cracks, under the thrust of the impinging water, slid forward some 18 inches. This movement covered a period of some eight hours and then stopped. Investigation disclosed the information that the failure was due primarily to the fact that the dam was founded upon a bed rock, the successive strata of which were separated by layers of shale or clay. The impounded water, having worked itself under the foundations, had softened the clay, with the result that the upper stratum carrying a portion of the dam had moved forward on the lower. It was stated that the weakness of the concrete was doubtless due to the fact that much of it had been hurriedly placed, part of it in freezing weather. The anchor bolts, which had been grouted into the foundation rock, had moved outward with the rock into which they were anchored.

On April 7, 1910, the collapse of a concrete roof under construction at the new car barn of the Shore Electric road at Saybrook, Conn., took place and resulted in the death of one man and the injury of two others. The roof was a four-inch slab of reinforced concrete on girders, about eight feet on centers and of thirty-seven-foot span. The last work had been completed about ten days and the forms were being removed. It was believed that the premature removal of the forms and the excessive loading of the green roof slab with roofing material were the joint causes of the accident.

On July 13, 1910, one of the columns of the concrete groined arch roof to the filter chambers in course of construction at Owen Sound, Ont., collapsed while the centering beneath was being removed. Two men were quite seriously injured. The accident apparently was due primarily to the early removal of forms, combined with the fact that the 18"x18" columns on two sides of the square roof of the arch were quite incapable in themselves of resisting the arch thrust. The forms were removed in only four days after pouring, notwithstanding the fact that seven days was the minimum specified time for removal.

The upper part of a reinforced concrete chimney under construction at the plant of the American Woolen Co., South Royalston, Mass., collapsed on April 9, 1910, causing the death of two men. The chimney was to have been 105 feet high with an inside diameter of four feet and an outside diameter of four feet eight inches at the bottom, and with walls varying in thickness from eight inches at the bottom to four inches at the top. The forms used in construction were in two sections, each three and one-half feet deep. The procedure was to fill the upper form, then to loosen the lower and set it above the upper for filling. This took one day. Next morning the form in the lower section was loosened and it was placed on top and filled. Thus the concrete in any 3½-foot vertical section had less than twenty-four hours in which to set before its side-supporting forms were removed. The accident occurred when a height of about seventy feet had been reached, the section last uncovered, then only twenty hours old, caving in and carrying the workmen to the ground with it. It is reported that the temperature the day before the break had taken a sudden drop, but it was not at any time below freezing. The failure was undoubtedly due to loading a very green concrete before it had acquired sufficient resisting power, as the materials were good and the design and execution satisfactory.

A reinforced concrete grain elevator of typical design failed under a normal pressure of grain at Springfield, Ohio, on October 24, 1910. As has been rather common in elevator construction where a battery of cylindrical units has been constructed, the unused spaces, external to the cells but lying within the tangent walls, had been utilized as auxiliary bins. No one saw the beginning of the collapse so that its exact behavior cannot be stated, but from the appearance afterwards it was evident that the lower section of the wall where the pressure was greatest was forced out under the pressure of the wheat. This portion sheared off clean at the line where the straight wall connected with the circular wall of the larger bin. The weak point in the structure was that the horizontal rods in the straight wall were not connected to those in the circular, nor were they tied back for any distance into the concrete of the circular walls. It was stated that the plans showed the rods in the straight wall securely fastened into the circular bins and that the failure to so fasten them was due to the negligence of the foreman.

On November 22, 1910, a four-story reinforced concrete building erected for the Henke Furniture Co., Cleveland, Ohio, suddenly collapsed, throwing one of the walls over a two-story frame building next door and so crushing the structure as to cause the death of four of its occupants and the serious injury of seven others. It was of reinforced concrete column and girder construction, with hollow tile and concrete floor system, and brick curtain walls varying in thickness from twenty-one inches at the basement to thirteen inches at top floor. A commission of inquiry was immediately appointed, on which were representatives of the Builders' Exchange, the Cleveland Engineering Society and the Cleveland Chapter of American Institute of Architects. This commission was empowered to take evidence and to consult every available source of information that might explain the cause of failure. After the wreck had been carefully examined, the design checked over, and the witnesses examined, the finding was announced. The failure, it stated, was due primarily to the premature removal of forms in the third story. It fixed the responsibility on the archi-

tects, the contractor, the owner and the department of buildings for the city of Cleveland. The architects were adjudged responsible in that they did not give sufficient consideration to the removal of the forms, in that they did not give sufficient attention to the materials, and in that they did not give adequate supervision to the work of construction. The contractor was adjudged culpable in that he employed foremen who were entirely ignorant of the intent of plans and specification or of the nature of the materials they were using. In consequence, the sand was inferior, the forms were removed prematurely, and that regardless of weather conditions the green concrete was regularly over-tressed, the members were not of the size called for in the plans, the concrete composing them was open and porous and sawdust and shavings were found in the bases of columns. In addition it developed that less cement had been delivered to the building than would have been necessary to construct it had it been built as planned.

The owner was deemed responsible in that he had not employed a special concrete inspector on the work as required by the building regulation.

The department of buildings was held responsible in that it had ignored the requirements of that portion of the building code which makes it necessary that the owner employ a special reinforced concrete inspector. It thus appears that the building department, rather than the building code, was at fault.

I have chosen to classify the causes of failure in the above cited cases as follows:

(1) Interference with a suitable design by those in authority, but not possessing a knowledge of engineering practice.

(2) Defective design.

(3) Inferior materials.

(4) Ignorant or wilful disregard of specifications and plans.

The first of these is unfortunately of too common occurrence. In all human probability the Austin dam and the Edinburgh arch would be standing today but for the intervention of the "cock-sure aggressive" individual who, when clothed with a little brief authority, becomes a paragon of wisdom on everything under high heaven. This type is found frequently in our municipal councils, and it is to be regretted that engineers of wide experience and good judgment sometimes permit themselves to be dominated by them. An engineer's judgment may be in error, but is it not more likely to be productive of good results if it be corrected through consultation with other engineers of equally good standing than if it be reversed by men entirely untrained in the problems of design and construction.

Fortunately the day of unsafe design in reinforced concrete is becoming a thing of the past. The design of reinforced concrete, like the design in wood or steel, has been reduced or is being reduced to a standard basis on the proposition and strengths of materials which constitute it. There is, therefore, no reason today why the average practicing engineer should not acquaint himself with concrete designing so that, at least, he can finish his plans with some such detail as he does those for his structures in steel. He may, if he prefers, leave the details to his contractor who, like the contractor for steel, can make them according to the standards of his practice. He must exert every care in informing himself as to the character of the materials he must employ and of the foundations upon which he proposes to erect his structure. The dams at Fertile, Minn., and at Austin, Pa., furnish illustrations where disaster might have been averted by a careful examination of the underlying strata prior to construction. The designer must recognize too that the safety of his design depends upon the constructor as well as upon himself, since concrete construction is not fixed as is that in steel. An editorial in the "Engineering News," speaking of this phase of a designer's responsibility, asserts that the "design cannot be sent from the drawing table with perfect confidence in its precise reproduction in the structure. It is the joint product of the man in the office and the man in the field, and any design which fails to recognize this is a poor one no matter how nearly it may conform to accepted standards. No engineer who is not prepared to supervise the construction of a reinforced concrete structure is justified in designing that structure as closely to the safety limit as he is when the construction is to be under his eye."

The prevention of the utilization of inferior material is the work of the engineer, the architect and the inspector. No reinforced concrete work of any magnitude should be constructed without a capable, conscientious inspector. The Henke building suffered from inferior material, as it did from almost every other malady to which reinforced concrete is heir. The remedy for this is vigilant constant inspection. Failure resulting from the premature removal of forms could invariably have been prevented by the exercise of intelligence and a little precaution. The Henke building disaster, the Owen Sound filtration plant accident, the car-barn roof failure at Saybrook, Conn., and the chimney collapse at South Royalston, Mass., were all preventable if careful examination had been made before stressing the concrete which, possibly due to temperature conditions, had not yet acquired its preliminary strength. The failure of the grain elevator at Springfield, Ohio, was due to the ignorance of a foreman. Any foreman who appreciated the proportions of the material he was handling would not make the blunder that was made.

The remedy for these evils is the employment of the experienced, intelligent, painstaking inspector. He sees that the forms are cleaned before the concrete is poured, that the ingredients are correctly proportioned, that the steel is properly placed and in correct amount, that the members are of dimensions called for by the plans, and that the forms are not removed until the material has acquired sufficient strength to be self-sustaining. The capable inspector is essential to safe construction.

R. F. Havlick, South Bend, then read the paper on "Concrete Blocks," illustrated by lantern pictures crete Blocks," illustrated by lantern pictures thrown on screen. The subject of this paper was very ably handled.

A very interesting and exhaustive paper, illustrated with slides, was read by H. P. Bowes, superintendent Warren Bituminous Paving Company, Toronto, on "Grading Stone Aggregate."

C. W. Noble, consulting engineer, Toronto, read a most technical and interesting paper on the "Prevention of Corrosion in Metal Lath," illustrated by a number of unique slides showing chemical reactions actually projected on the screen.

## TUESDAY EVENING SESSION, MARCH 7

The first paper read at this session was that of W. M. Kinney, assistant inspecting engineer of the Universal Portland Cement Company, Pittsburg, Pa. His subject was "Manufacture of Portland Cement." It was also illustrated with slides and took his listeners through the immense plant at Pittsburg, showing and describing the methods, machinery and process in detail how cement is manufactured from the raw material to the finished product, ready for shipment.

J. Maxwell Carrere, of the Blanc Stainless Cement Co., Allentown, Pa., read a paper on "The White and the Gray." He complimented Mr. Kinney on his paper, the subject of which was treated in a masterly way from the practical side. He said in part:

"The white Portland is purely American, for while scientists knew that a white Portland cement could be produced from pure kaolines and pure limestone, and some companies tried it, the cost of such a product was commercially impossible. Practically, I consider it equally unattractive. After years of toil in experimenting—four of which were spent in the present plant—Allentown, Pa., gave birth to the white Portland cement of commerce.

"The history of four years, since the white Portland cement was introduced, is most interesting,

PETER GILLESPIE, PRESIDENT CANADIAN CEMENT AND CONCRETE ASSOCIATION.

for they were years of distress and panic, years of curtailment of operations, years of economy. They are interesting because of the possibilities created for the gray by the white Portland cement, because of the artistic possibilities in a cement structure of tomorrow, and because of the further artistic education it may create for the welfare of the general public.

"In quality there is no difference between the gray and the white. In purity, color and adaptability the white is the darling. Like in many other paths of life, there is no occasion for jealousy, for being of one nature, one quality, one family they can be made to harmonize ideally in attractive and durable construction, heretofore unattainable."

E. A. James, editor Canadian Engineer, Toronto, read a paper on "The Necessity of Inspection in Concrete Work," which was listened to with close attention and received hearty commendation from all present.

## WEDNESDAY AFTERNOON SESSION. MARCH 7

The first paper that was read at this session was "Cement Surfaces and Finishes," by Robert Cathcart, of the Glidden Varnish Company, Cleveland, Ohio.

### CONCRETE SURFACE TREATMENT.

**By Robert Cathcart, Cleveland, Ohio.**

The Cement Age is in its primitive stage, and its future is destined to eclipse all modern idea or thought. In the natural sequence of things and conditions, no other building material offers such advantages to the builders of our national homes and factories.

The plans and modes of surface exterior treatment to large, massive work, such as bridges, abutments, reservoirs, etc., sometimes to exterior factory construction, are both operated by the mechanical and chemical treatment.

Mechanical treatment is executed either by skilled or unskilled labor, or mechanical devices, in the following manner: picked, scraped, rubbed when green, bush hammered, tooled, sand blasted, etc. All of the treatments are more or less expensive; in many cases the workmen have stunned the corners, and the surface generally gathers dust and dirt from the atmospheric gases, which tend to destroy or disintegrate the surface in time. They generally are for effect only and give no great weather resistance to the surface. In fact, they are unfavorable to many conditions of construction and in some cases only a makeshift to betterment.

Chemical treatment is also an unskilled or skilled labor treatment, with commercial muriatic acid, acetic acid, etc., diluted with water, consisting of cutting the scum surfaces to relieve the hidden aggregates. It is also a more or less expensive operation and the nonuniformity of the surface, combined with its chemical action, does not put it into special favor, although such processes have been patented. The muriatic acid is liable to stain the surface and leave salts that will form a soluble alkali in combination with the concrete and produce an efflorescence on the surface.

The veneer treatment to outside walls with plaster has proven quite unsatisfactory for many reasons. The bond to the concrete has generally been weakened by the percolation of water through the plaster to the concrete surface and caused a loss of adhesion, strength and permeability.

The outward influences, such as the sun's rays, frost, rapid wetting and drying, cause shrinkage of the veneer surface, loosening all soundness of adhesion, causing cracking and scaling.

Thus it would look as if no plaster should be applied to exterior walls where dampness could possibly lodge itself.

Coated surfaces are those, generally speaking, that have had cement grouts or washes applied to them. They are never stable and generally used to fill up the unevenness of the surface, without regard to their lasting qualities. In fact, they are dangerous surfaces to apply any surfacing materials to because of the unstableness of the bond.

Floor surfaces are tricky, because no man finishes the entire area of surface, and they should be rigidly covered by inspection before operating and treatment.

Obstructions or obstacles to concrete surfaces that demand treatment for preservation and service:

External influences on concrete surfaces, such as heat, cold, sunshine, water pressure, percolation, show their effects in two forms of disintegration—mechanical and chemical, defined as follows:

Mechanical: A consequent washing away of the softer constituents from the surface by the softening action of water due to frost, the alternating action of the sun's rays, resulting in a periodical expansion of the other surface.

Chemical: The proportion of carbonic acid gas, oxygen water and gaseous products of combustion in the atmosphere, a separation of scales, sometimes thin and thick, which, by accumulation and an infiltration of strange matter into the pores, cause a peeling from the surface. In other words, you get a condition of disintegration or corrosion, both from within and without which has been termed "Wall Rot Proper."

The lodging of the soluble salts upon the surface is efflorescence and mainly due to such conditions as above mentioned, although local conditions and materials govern its area of trouble.

Coatings: The need of, and kind of materials:

To produce a material for surface coating on concrete has been widely discussed pro and con by all scientific bodies. Plaster has been found to be unreliable for exterior surfaces. Grouts are unstable.

To obtain an alkali- and acid-proof vehicle with a pigment that will have sufficient wearing body, has been the aim of the engineer, contractor, consumer and manufacturer. Thus we will consider a few of the essential factors:

1st. Materials should contain a vehicle and pigment working in harmony with the conditions upon the surface.

2nd. They should contain an acid and alkalic sunproof color and pigment.

3rd. They should have a sufficiently hard wearing surface to allow successive coats without further treatment of the surface.

4th. They should be sufficiently heavy to fill the surface voids and stop suction.

5th. They should produce a finish sufficiently close to the texture and originality of the surface.

Treatments: Treatments of concrete surfaces are divided into two divisions, as follows:

The shallow or superficial method of treatment is a filling of the voids near the surface without discoloration. It is one that was much sought after in the early stages of concrete work, especially on concrete blocks, etc.

Although the monolithic type of construction has gained more favor in larger construction, the mechanical and chemical treatment of surfaces, as outlined, are the surfaces most in need of a shallow or superficial treatment.

Cement bricks, blocks and cast stone are also surfaces that need a light treatment.

The physical or external method of treatment is a coating of natural materials as a prevention of contact between the elements and the construction. The treatment should be defined under two divisions:

1st. Damp-proofing and decorative, without complete obliteration of the texture of the surface.

2nd. Water-proofing only—without the decorative feature, and complete obliteration of the texture of the surface.

Under the first division you have a combination of results, against the mechanical and chemical disintegration of the surface, as defined for exterior surfaces. The operation should be two-fold in its purposes—damp-proofing and decorative in one operation, without destroying the texture of the surface.

Under the second division comes the subject of water-proofing (defined by Webster as proof against penetration), which may mean everything or anything—and we are sure the word has been handled improperly as to its meaning, because of our undying enthusiasm on the subject—although it may only mean damp-proofing, instead of water-proofing.

Water-proofing is an engineering problem of much discussion pro and con and does not enter into the subject of concrete surface treatment.

### Specifications.

The following essentials should be strictly adhered to to insure results for the surfacing of concrete:

All exterior or interior surfaces must be free from loose scales, sand, grit, grease, oil or other foreign matter.

Surfaces can be freed of such materials by either scraping, wire-brushing or scrubbing with carborundum brick.

No muriatic acid or other acid treatment should be used, unless the surface is thoroughly neutralized by water or a light alkaline solution.

Green surfaces should be treated with a thin coat of surfacing materials to aid the neutralization of the free lime and fill the voids on the surface.

After the first coat is applied, evaporated patches should be re-coated to insure evenness on the future coats.

All surfaces should be dry and free from moisture to give perfect adhesion.

Exterior surfaces of buildings should be protected from rain or heat while drying.

### Costs.

Physical or External Treatment—The figures including the cleaning and preparing the surface under ordinary conditions on two-coat work are generally estimated at 25 cents to 40 cents a square yard.

The covering of a concrete surface is about one-half that of lead and oil on wood—first coat—and two-thirds of lead and oil on wood—second coat—and equal to lead and oil on wood on the third coat for exterior surfaces.

The labor for the physical coat treatment is about one-third greater than the application of lead and oil on wood for exterior surfaces.

The non-uniformity of surfaces, filling of voids and suction explains the covering coats.

On concrete floors the covering of a concrete coating or dressing runs from 200 square feet per gallon—first coat—to 400 square feet—second coat—according to condition of surface.

No one job is an example or guide—they all differ in uniformity of conditions.

The shallow or superficial method or treatment on coating two coats costs about one-third to one-half per square yard less than the superficial or external treatments, depending upon conditions.

The operator must be careful of the first or priming coats, as these are the foundation for a perfect bond and neutralization of the surface for successive coats.

The operator should produce a surface texture without destroying the originality of the surface.

### Warning.

No surface is free from dirt and foreign matter, and it requires the removal of such substances either by wire brushing or a light acid treatment to remove stained portions in order to secure a firm bond and penetrating quality to the surface.

Richard L. Humphrey, president National Association of Cement Users of the United States, and director of the Federal testing laboratories at Pittsburg, was introduced at this session by President Gillespie as "having been good to us on three former occasions and will tell us now about the National Association in the States."

Mr. Humphrey in his opening remarks said that the growth of the cement industry in the United States had been so rapid that when one stops to count the production one begins to realize its growth. Last year the production had been seventy-five million barrels of cement and it would soon be one hundred millions. It was hard to understand how fast the industry had grown. American cement, he said, is as good as German cement, and better—tests show this. The National Association of Cement Users had its birth in the concrete block industry. "We drifted along," he continued, "for several years, educating small users how to use cement. The Panama canal is not in it with your small consumers. We feel we are making progress, and are naturally interested in the Canadian cement industry and feel it must succeed. The formulation of building regulations is the most important work we have done of late years." He then went into detail regarding these regulations in the various large cities in the United States. Next he discussed the question of what is good drain tile. He said the Canadian association should join the National Association of Cement Users in a joint arrangement for testing drain tile; every piece of concrete work should be tested, that is what the National Association of Cement Users is working for. Tests on work of this kind will not average more than ½ of 1 per cent. He believed concrete should be brought up to the same degree of efficiency as steel. He said there was a great deal of work to be done in this direction. He would like to see a broad co-operation with the Canadian association. "We have watched the benefits of the cement show from Chicago to New York. The cement show is beginning to cease to some extent, being an educational factor. What we want now is more technical knowledge. The people are fairly well educated in the States along these lines."

C. S. L. Hertzberg, engineer Trussed Concrete Steel Co., Walkerville, Ont., read a paper on "A Few Points on Reinforced Concrete Design," which was well received. In the discussion following many points were brought out more fully by Mr. Humphrey and Mr. Jamieson, of Montreal.

## "SMOKER" AT THE ST. CHARLES HOTEL.

A large number of members of the Canadian association and visitors to Toronto interested in concrete construction gathered in the club room of the St. Charles Hotel by 9 o'clock in the evening.

The gathering was presided over by President Gillespie, who introduced Richard L. Humphrey. "You think that your association is not as large as it should be, which in a certain sense is true, but I look at it with different eyes," was the opening remark of Mr. Humphrey's talk, which contained much good advice and throughout stuck closely to the subject in hand. He said that the N. A. C. U. is making great progress in the United States. It took years, he continued, to achieve the success it has gained today; the Canadian association will have the same battle to fight and will meet with the success it deserves. New York woke up last December to the importance of the cement industry and next year's show will get a much better attendance and everybody will talk about it. Canada will meet with the same experience in the near future. The N. A. C. U. from a few hundred members several years ago has grown steadily until now it has over 1,000 members and its rapid increase can not be stopped. He concluded by urging: "Let every man put his shoulder to the wheel and push."

J. A. Jamieson, consuling engineer of Montreal, made a short but very telling speech. He said in part: "The Canadian Cement and Concrete association is still young and has a comparatively small membership, which, however, is the nucleus of a great organization. The small attendance at the sessions was in a measure disappointing, but let us all work together to increase its membership and assure its success."

WM. SNAITH, SEC.-TREAS. AND MGR. OF CEMENT SHOW OF CANADIAN CEMENT AND CONCRETE ASSOCIATION.

Musical recitations and songs by some of the leading talent from the Toronto theatres, orchestra music, a song by Leonard J. Wookey, of the Canada Cement Co., which was encored to the echo, and a poem recited by Mr. Pearson made the entertainment feature of the "smoker" ideal. Shortly before midnight refreshments were served and as the strains of "Home, Sweet Home" floated through the room the guests departed.

## THURSDAY, MARCH 9.

A meeting of the committee on specifications was held in the forenoon.

At 2:30 p. m. President Gillespie called the annual meeting of the association to order.

Wm. Snaith, secretary of the association, read his report, showing a healthy financial condition. This report was accepted as read.

It was moved by C. R. Young and seconded by J. A. Jamieson, that the specifications submitted by the committee be adopted as the specifications of the association. Further, that these specifications be printed in pamphlet form and distributed. Carried.

A strong feeling among the members was shown in favor of holding the next convention and cement show at Montreal.

It was moved by J. A. Jamieson that the meeting place be left to the executive, to render its decision and notice be given nine months previous to date of meeting. Seconded and carried.

A nominating committee consisting of Messrs. Macdonald and Dates was appointed, which submitted its report recommending for election of officers of the association a list of names with but few changes from last year.

The following Executive: Canadian Cement and Concrete Association, for 1911 and 1912 was chosen:

Hon. George P. Graham, honorary president, Minister of Railways and Canals.

Peter Gillespie, president, lecturer in theory of construction, University of Toronto.

William Snaith, secretary-treasurer and manager of cement show, assistant engineer Barber & Young, Toronto.

T. L. Dates, manager Sun Portland Cement Co., Owen Sound, Ont.

W. H. Ford, general sales manager Canada Cement Co., Montreal, Que.

Ivan S. MacDonald, editor "Construction," Toronto.

J. A. Jamieson, consulting engineer of Montreal.

C. C. Lapierre, assistant general sales manager of Canada Cement Co.

George Benoit, Builders' Supply Co., Montreal.

James Pearson, president Constructing and Paving Co., Toronto.

C. F. Pulfer, London, Ont.

D. C. Raymond, vice-president Bishop Construction Co., Montreal and Toronto.

Alfred Rogers, manager of the Alfred Rogers, Ltd., Toronto.

J. R. S. Scott, Toronto, Ont.

Kennedy Stinson, manager Stinson-Reeb Builders' Supply Co., Montreal.

C. R. Young, Barber & Young, bridge and structural engineer, Toronto.

Gustav Kahn, manager Trussed Concrete Steel Company of Canada.

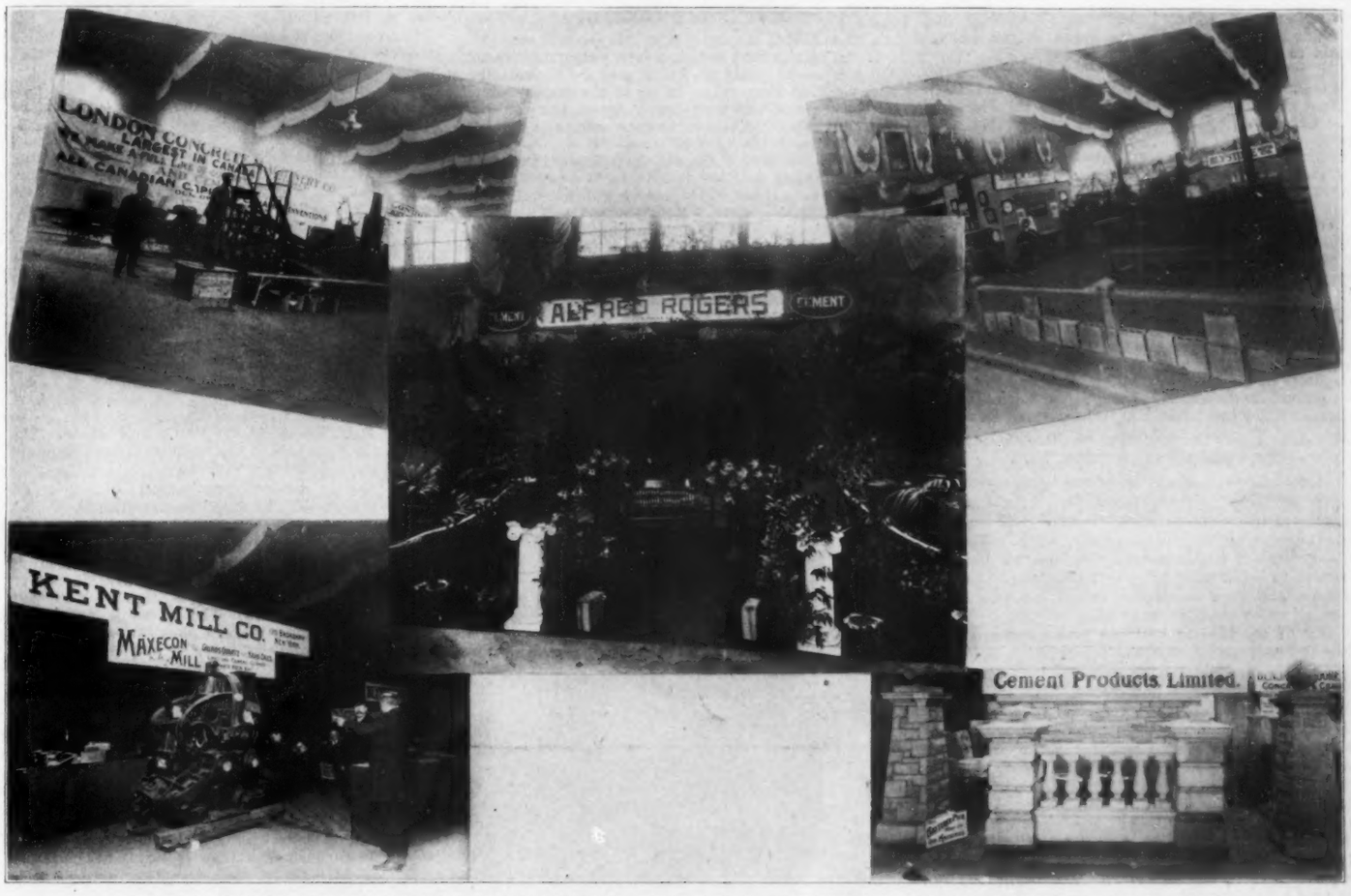
## THURSDAY EVENING, MARCH 9.

The joint meeting with the Engineers' Club of Toronto came to order at 8 o'clock p. m.

Dean Galbraith made his address of welcome on behalf of the Engineers' Club. He said that this seems to be the day for cement. Expansion is seen in every direction and the movement is surely beginning to assume an aggressive form, as "The latest thing seen in cement seems to be cement guns." In conclusion he said the club had been much interested in the meetings of the past few days and would be glad to hear what their guests had to tell them.

J. A. Jamieson, of the committee on specifications, said in part: "I will touch upon a few points on specifications and tests. The growth of the cement industry in the last decade has been phenomenal. Each one of us is in touch with its growth and can remember when practically no cement was made. Five million barrels of cement were manufactured in Canada last year and 75,000,000 barrels of cement in the United States, which does not take into account natural cements. Concrete has proved a good structural material. It is fireproof, saving by its use vast fire losses. The increase in the production of cement will be greater year by year. The quality of our cement is good. Great improvements in its manufacture have been made in the last ten years. Cement mills in every detail differ greatly from those of a few years ago, which are now considered very crude affairs. And yet we are still turning out a crude product. We continue turning out a better product with every year. Its tensile strength of 600 pounds in a short period of time will stand the test double that." He then turned his attention to specifications which he said are by no means perfect yet. He urged one specification standard for the entire continent. He touched on concrete, and said the tendency is to look into this and study it closer, as there is very much to learn yet, although it looks simple to mix cement, sand, broken stone and water. Reinforced concrete construction in Great Britain, as well as here, is taking a leading part.

Richard L. Humphrey spoke on "Building Laws and Reinforced Concrete" and said in part: "I will not burden you with statistics of enormous fire losses in the United States. Timber has been our principal asset. The California earthquake destroyed vast masses of material, mostly wood. A number of things led to the revision of building laws. I believe all our building laws are verbose. There are three things to be considered in building laws—safety, sanitary and fireproof construction." On charts he showed the burnt districts of San Francisco, Chicago, Boston and Baltimore and by




SOME OF THE PROMINENT EXHIBITS AT THE CANADIAN CEMENT AND CONCRETE ASSOCIATION, TORONTO, ONTARIO, CANADA.

aid of slides showed ruins of buildings faulty in fireproof and concrete construction and other buildings that stood the tests where concrete was applied correctly. Owners of reinforced concrete buildings, he said, did not insure the structure, only its contents.

The building code of Toronto makes the cost of concrete buildings 25 to 40 per cent higher than in other cities. This code, he said, should be revised. "Reinforced concrete," he continued, "is here to stay. It is durable, sanitary and fireproof. There should be no discrimination."

In the discussion which followed, C. R. Young said that engineers of Toronto are pointing out in a memorial to the council the matter of the misinterpretation the building laws are liable to, and a revision will probably be made in the building code of Toronto.

Frank Barber, Barber & Young, bridge and structural engineers, Toronto, read an interesting paper on "Adaptation of Concrete for Long Span Bridges," which he illustrated by aid of lantern slides.

The convention adjourned sine die.

### The Exhibit.

The prettiest decorated booth of the Cement Show in St. Lawrence Arena was that of Alfred Rogers, exhibiting the product of the independent Canadian cement plants, of which he controls the output. Natural plants, palms and flowers made this booth an ideal arbor of beauty and a most fitting place for the Hon. Geo. P. Graham, Minister of Railways for Canada and Hon. President of the Canadian Cement and Concrete Association, to deliver his well chosen speech to open the Cement Show.

Much interest and curiosity was created by the cement gun at the exhibit of the Canadian Cement-Gun Company, which was in charge of H. C. Wise, of New York. The cement is thrown by the machine the same as a fire engine throws water through its hose and nozzle. It coats equally the surface upon which the cement is thrown. Crowds invariably gathered at its booth when the cement-gun was brought into action.

The Canada Cement Company of Montreal had on exhibit a miniature cement mill in full operation manufacturing Canadian Portland cement, in which much interest was taken daily by visitors. Samples of Portland cement and concrete products were exhibited at its booth. Messrs. C. Chas. Lapierre, W. V. Johnson, L. W. Coles, William A. Toohey, Wookey and Dillworth were in charge of the booth and entertained visitors.

H. O. Edwards, advertising manager of the Canada Foundry Co., had charge of its booth where its concrete mixers were exhibited.

The Cement Products Limited, of Toronto, manufacturers of artificial stone, had an exhibit which received much favorable comment. It consisted of a fine balustrade on smooth finish stone, battered piers and broken ashlar wall in rock face stone. The latter is so close to the natural product that few can distinguish the difference. This concern has built two additions to its plant since it began business two years ago, and is contemplating further enlargements. It is building a plant in Montreal for handling its eastern business. The exhibit was in charge of R. G. Rittenhouse, manager, and C. N. Deverall, assistant manager.

The Lehigh Clutch Company of Catasauqua, Pa., had a fine exhibit of its friction clutch. The booth was in charge of C. H. Wolf, Jr.

The Kent Mill Company, of New York, had on exhibit the Maxecon mill which, as usual at cement shows all over the continent, attracted much attention. Horace G. Kimble entertained the visitors at the booth. He is shown in the illustration delivering a lecture on the fine qualities of the Maxecon Pulverizer to William Harper, customs broker, and O. S. Clewlo, customs officer in charge, who looked after the bonding and other customs' matters for most of the exhibitors. The fine points of the lecture were appreciated, but no reduction on the duty of the monster "Maxecon" was obtained.

The London Concrete Machinery Company exhibit covered ten of the large sized spaces. Everything shown in the illustration belongs to the exhibit of this company. This exhibit contained the largest variety of concrete machinery ever shown by any firm in Canada. The machines shown in this exhibit only represented about one-third of the lines of concrete machinery manufactured by this firm, they being one of the largest manufacturers of concrete machinery.

The Peerless Brick Machine Company's exhibit, showing the wonderful Peerless Cement Brick Machine in full operation by hand and power, supplied by President L. V. Thayer, of Minneapolis, kept crowds at his booth wondering how so many perfect bricks could be made so easily, without the operator turning a hair.

The Canadian Engineer, one of the brightest technical journals published in Canada, issued a daily during the week of the Cement Show. The booth was in charge of Jas. J. Salmond, business manager.

The Gearless Company, of Gloversville, N. Y., exhibited at its booth its cement brick machines and had a constant crowd of admiring visitors watching how easily cement bricks and tiles could be turned out of these machines. G. H. Witherhead and W. J. Dunham, inventor of these machines, were in charge of the exhibit.

The Ottawa Silica Company, of Ottawa, Illinois, miners and shippers of pure silica sand, exhibited samples of its pure sand. F. A. Cebulske had charge of the booth.

The Blystone Manufacturing Company, 129 Forest street, Cambridge Springs, Pa., exhibited the Blystone Batch Mixer, which made a decided hit with the Canadians.

W. E. Snyder, who had charge of the exhibit of the La Grange Specialty Company, La Grange, Ind., said that he had had many callers to see the "Little Giant" cement brick machine at work, and that he had done good business at the show during its week's progress. He was well satisfied.

Quite an interest was taken by visitors in the exhibit of concrete carts and wheelbarrows of the Meaford Wheelbarrow Co., Ltd. N. S. Burleigh had charge of the booth.

Eadie-Douglas Ltd. exhibited samples of waterproofing at its booth. W. K. Macdonald, manager Preservative Products Dept., was in charge of the booth.

C. F. Pulfer, of London, Ont., exhibited concrete block and brick machines, concrete mixers and automatic tampers.

Wetlaufer Bros., of Toronto, exhibited concrete mixers, block, brick, tile machines and silo moulds.

### Convention Notes.

L. V. Thayer, of Peerless Brick Machine fame, was not a bit annoyed when he was delayed the last day of the show as he was about taking his train, to have two Canadians stop him at his booth and plank down "big rolls" and get their receipts for the brick machines.

Colonel Duffy, W. C. Huff, John Wright and John Lavelle, manager and secretary-treasurer of the

Alfred Rogers Limited, entertained visitors and friends at their booth in the arena, which will remain to them long a pleasant memory.

It was P. L. Blystone's first appearance on Canadian soil when he exhibited his Blystone Batch Mixer at the "Arena." He captured the hearts of the Canadians by his genial and wholesouled manner.

James Bogue, of Peterboro, Ont., a prominent builder and contractor of concrete construction work, paid a visit to the Cement Show. He said he was well pleased with it.

William Snaith, secretary of the Canadian Cement and Concrete Association and manager of the Cement Show, deserves richly the thanks he received from exhibitors for the thoughtfulness he displayed in making things comfortable for them during their week's stay in the "Arena."

Richard L. Humphrey, president of the National Association of Cement Users of the United States, was taken in charge by J. A. Jamieson, consulting engineer of Montreal, and C. R. Young, bridge and structural engineer, of Toronto, and shown the Cement Show one afternoon. He enjoyed the visit.

## CLEVELAND CONCRETE NEWS.

Cleveland, O., March 20.—Some good-sized concrete jobs are being planned for Cleveland this year and huge quantities of cement will be used in engineering and construction work. The recently revised building code now compels building owners to build more fireproof structures than ever before, and as a result the use of concrete is becoming much more common than of yore.

One of the biggest building jobs announced during the past month was the construction of a new West Side Technical High School, plans for which have been completed and ground broken for the foundations. The building complete is to cost $400,000.00 and will house 1,000 pupils. It will be of reinforced concrete, and will be one of the city's handsomest educational institutions. Bids for the work on the new structure will be let within the next few days.

Frederick W. Striebinger has completed plans for a 12-story reinforced concrete and steel building, to be erected on the west side of the Public Square next to the American Trust Building, and is now receiving bids for the work. The building will be strictly fireproof throughout. It will match in height and general architecture a structure to be erected this year by W. G. Marshall, druggist, on an adjoining lot. Work on that project is also under way under the direction of Architect W. S. Lougee.

Work on the three new Y. M. C. A. buildings in this city will probably be under way within the next month. Bids for the West Side building, costing about $100,000.00, and the East Side structure, costing $65,000.00, are now being considered by the building committee. A little delay has been experienced on the main or central building, which is to be eight stories high and cost about $400,000.00, but it is hoped that contracts will be awarded within the next week or two. All three buildings will be of a fireproof type of construction.

A new $100,000.00 fireproof storage warehouse is to be erected on West 25th street, near Detroit avenue, for the Fireproof Warehouse Company, of which Jay Latimer is president. The property is now being prepared for the new building, which is to be started soon. It will be fireproof throughout, containing stores on the ground floor with storage lofts above. Entrance to the lofts will be from a street in the rear, on which the new building will face.

A new $15,000 factory building of reinforced concrete is to be erected by William Dunbar at 1539 East 49th street. It will be three stories high and complete in every particular. These small fireproof factory buildings are becoming very popular in this city and practically all new buildings of this sort are being constructed of concrete because of its economy in cost and its adaptability.

A contract has been given the National Concrete Fireproofing Company for the mason and fireproof work on the new $400,000.00 power plant for the Cleveland Electric Illuminating Company. Considerable art stone, which is to enter into the exterior construction of the new building, is to be furnished by George Rackle & Sons, who have a big plant in Newburg devoted to the manufacture of concrete art stone.

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Announcement has been made that the Cement Tile Machinery Co., of Waterloo, Ia., will open an office in Memphis, Tenn., with W. L. Northrup in charge. The office will be in charge of business in the South and Southwest.

## POLYCHROME CONCRETE.

By Albert Moyer, Assoc. Am. Soc. C. E.

A material which hardens into permanent stone, the component parts of which may be pre-selected and modeled into shape to meet the requirements of the use and fancy of the designer, has the distinct advantage of obtaining both color and texture at a cost far below that of cut stone.

This is illustrated by the Polychrome Concrete Vase exhibited at the Architectural League, Fine Arts Building, New York, during February, 1911.

The materials were Vulcanite Portland Cement, crushed black and crushed yellow marble screenings, all passing through a No. 8 screen (⅛ inch mesh), black and yellow marble chips, all passing through a half inch and all collected on a quarter inch screen.

These aggregates were mixed medium wet and moulded in a plaster mould. As soon as the concrete was hard enough to hold in shape, which took about 48 hours, the inside core was removed. Inspection would then show as to whether it was safe to remove the outside mould. If sufficiently hard the outside mould was removed and the surface immediately scrubbed with a stiff house scrubbing brush and water. If this failed to remove the surface coating of cement, a wire brush was used. The concrete was brushed until the larger aggregates all appeared, and in order to obtain texture

POLYCHROME CONCRETE VASE, EXHIBITED BY THE VULCANITE PORTLAND CEMENT CO.

the brushing was continued until they were thrown slightly in relief.

The vase was then cleaned off with water and kept damp for a couple of weeks, after which it was washed off with a solution of dilute muriatic acid, five parts water. The acid was left on for a couple of minutes and then scrubbed off with clear water and a scrubbing brush.

The effect as to color, texture and form is permanent. The bonding material (Portland cement) is removed from each particle of stone, there being no artistic, practical or technical reason why the bonding material alone should be displayed to the eye.

This opens up a wide field for garden ornaments, decorative panels and balustrades for bridges, etc. The method and effect undoubtedly comply with all the fundamental principles of art.

## PITTSBURG CONCRETE NEWS.

Pittsburg, March 18.—The biggest proposition in the concrete line for Pittsburg at present was the letting of the contract for three piers for the Point Bridge over the Allegheny river to the Dravo Contracting Company of this city for $182,750.00. They will be paid for out of the big bond issue recently passed. A large amount of concrete will also be needed in the proposed bridge across the Ohio river from Woods Run to McKees Rocks, which is likely to be let this spring or in the early summer.

The Pennsylvania Railroad will shortly take bids on a concrete bridge across the Mahoning river at Lawrence Junction, O. It will probably be a 4-track bridge.

The Enterprise Contracting Company is coming into the Pittsburg district with its new steel concrete piles. It is driving a large number of these now for the Vesta Coal Company, at Fredericktown, up the Monongahela river.

The Department of Public Works has signed the plans for the new concrete bridge over Negley run at Larimer avenue, East End, and the contract will be awarded about April 1. The bridge will have the distinction of being the second longest concrete span in the world, its total length being 296.9 feet, or only 5 feet shorter than the longest span. The estimated cost is $180,000.00.

The Consolidated Concrete Tie Company, of Cairo, Ill., has been incorporated. The capital stock is $100,000.00. The incorporators are: Richard J. D. Cowan, J. H. Sneed, D. W. Hellig and others. The company will engage in the manufacture of concrete and reinforced railway ties, etc.

## WEST COAST CONCRETE NEWS.

San Francisco, Cal., March 16.—An indication of the activity to result from the awarding of the Panama-Pacific Exposition to San Francisco is shown by contracts just let by the Parkside Realty Company, which is developing a large tract of land near Golden Gate Park. The sidewalk work is to be done on the most modern plan followed in high-class residence districts, being of ample width, with a parked space on either side. The sidewalk work will require 30 cars of cement and over 1,000 tons of crushed rock. The sand is found on the spot. Over 8 miles of sewer will also be laid in this section.

The city of Oakland is publishing specifications for its new city hall in book form, and will be ready for bids about the end of the month.

The temporary city hall contract in San Francisco is said to be one of the largest single concrete building jobs ever let in this city. It was taken by Richard Keatings & Sons, 681 Mission street, at $188,320.00 and includes only the reinforced concrete framework. Special reinforcement is to be provided for the columns, consisting of steel angles, which will be furnished by the Pacific Rolling Mill Company.

Neil A. McLean was the lowest bidder on 15 concrete buildings for the San Francisco Presidio, the amount involved being over $225,000.00.

Revised plans have been completed for the new car barn of the Los Angeles Electric Railway. The building will be one story, 350'x625', of reinforced concrete throughout, including the roof. The exterior will be faced with cement plaster.

Bids have just been taken on a reinforced concrete bridge over the Arroyo Seco in Los Angeles, the lowest being $146,700.00.

Raymond Collins is arranging to start a factory at Bishop, Cal., for the production of concrete fence posts.

The McDonald Spiked Concrete Tie Company has been incorporated at Los Angeles, with a capital stock of $100,000 00, by M. N. Nunmaker, M. E. Fraleigh, W. C. Millan, F. M. Phillis and M. C. Denison.

The National Mortar & Supply Company, of Pittsburg, is doing a very nice business from its big plant at Gibsonburg, Ohio, and has no kick at all on present conditions. Its officials report a stronger demand for agricultural lime than ever before. The company has 85 acres of limestone at that point and has never struck bottom yet.

## CONCRETE MEN ON COMMISSION.

Concrete builders and contractors of Milwaukee, Wis., in a statement to the common council in which they say that concrete is the coming building material, have requested that they be represented on the building code commission. Architects and builders, they point out, have three representatives on the commission and they believe that they should have the same number. The council will probably appoint three men to represent the concrete builders on the commission.

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The Concrete Unit & Construction Company, Bound Brook, N. J., which has been recently incorporated, is contemplating the erection of a building 150' x 148' for their own use. A. H. Bigelow, the superintendent, says they are going to manufacture cement blocks on the Wilson molding machine, and also do a general contracting business. They will manufacture all classes of concrete blocks and other products and do a general contracting business.

# NORTHWESTERN

## Cement Products Association Holds Seventh Annual Convention at the West Hotel —Large Attendance—Great Enthusiasm.

The Seventh Annual Convention of the Northwestern Cement Products Association was held at the West Hotel, in Minneapolis, February 28th and March 1st.

This association, composed of a zealous band of concrete workers, were brought together by a common interest years ago. It has one of the largest memberships of any association in this country. The leading contractors, architects, engineers and dealers in the Northwest are members, and while in times past there may have been a larger attendance and more enthusiasm on account of the show feature, there was nothing lacking this year to make the seventh annual meeting go down in history as one of its most successful annual gatherings.

A combination of circumstances prevented the association from arranging for a show this year, but it is tacitly understood among the leaders that next year they will hold a show in either Minneapolis or St. Paul, which will rival the best held in this country.

The Northwest has always been a leader in concrete thought. They accepted concrete when others were inclined to be sceptical, and there is more concrete work in the Northwest in proportion to the population than in any other section of the country. Every branch of the industry has thrived.

The meetings of this association are always fraught with interest, and the discussions which follow the papers are always full of meat, showing that the association is not only composed of workers, but thinkers. The idea of holding a show next year was discussed informally, and while no actual plans were made, it is generally understood that some period will be selected around the time of the Chicago Show, and one of the large buildings in either Minneapolis or St. Paul will house the exhibition.

While many of the prominent association workers' faces were missed at the meetings, there was still a goodly number of old timers present. The banquet at the Radisson Hotel on the night of the 28th was the most successful ever held by the association. Nearly two hundred people sat down at the banquet board, and the occasion was one long to be remembered.

## OPENING SESSION, FEBRUARY 28, 10 A. M.

The meeting was opened by an address of welcome by Wallace G. Nye, secretary of the Public Affairs Committee of the Commercial Club. Mr. Nye said that he hoped when the association held their next meeting that Minneapolis would have an exhibition hall to offer for the purpose of holding a show. He extended the greetings of the city to all the delegates and assured them that the city appreciated their coming and hoped they would come again.

President H. E. Murphy then responded briefly on behalf of the association.

The first address was that of Ernest McCullough, the well known structural engineer of Chicago. Mr. McCullough's subject was "Stucco Finishes," and there are few men in this country better qualified to speak at length on this most interesting subject. Mr. McCullough has made a deep study of the subject and outlined the history of stucco work from ancient times down to the present day. In Rome, they used cement plastered upon laths of switches or cane, tied to studding with vines. In Greece they had a form of the same construction. At the present time Mr. McCullough stated that the use of wooden lath has about disappeared, because it is unsatisfactory in stucco work. It is possible by using great care to have satisfactory work with wood lath, but the danger of shrinkage cracks makes it hard. Wood lath must be well soaked to avoid that trouble. Wire cloth and later expanded metal have succeeded it. In putting on stucco, the use of cement was a great advance over the lime which was formerly used. It has been found that a little hydrated lime aids in the work, making it easier to handle. Stucco can be used over old brick, stone or wood surfaces. On wood there should be wire cloth or metal lath furred on, to leave an air space for the mortar to be forced through for a binder or key, and also to protect the lath from rust. It is necessary that the lath be so protected, or there is danger of rust, which may ruin the wall. On brick or stone walls, if they are to be given stucco treatment, it is necessary that they be thoroughly cleaned before starting work. The dirt from the atmosphere must all be cleaned off, with a weak acid of some kind; hydrochloric acid, vinegar or sour beer will all do it. The surface must be thoroughly cleaned and rubbed down, and then wet until it will absorb no more moisture. There is a suction in old surfaces, and the moisture is necessary to overcome it. When the stucco is applied, it must be put on with considerable pressure, to be forced through the metal lath. A 1 to 3 mixture is rich enough, and when put on with pressure and scratched, it will give a satisfactory result. Too many coats will cause a tension in the wall, which will tend to cause the coats to pull off. There must be no lime in the first coat, as lime needs air to harden, and the succeeding coats will prevent it getting the air for hardening. The second coat may have 5 per cent hydrated lime and the third 15 to 20 per cent. Hydrated lime weighs about twice that of cement, so in volume it would double the percentage proportions. With the third coat, it can be put on thin and rapidly, so that an entire side of a building may be completed, avoiding the joining mark showing. This joining cannot be avoided, for it will show with the best of care. So a paint coat is needed to finish it. He described a cement gun which has recently been devised, which throws a cement mixture, mixing cement and sand dry, and adding water, the whole being thrown with great force. The device is not yet in general use, but he anticipated a great future for it ultimately. Expanded metal lath must be protected from rust. It should be galvanized or painted. He had found the best results from dipping the lath in cement paint made of cement and skimmilk. The milk must be free from cream. The lath is to be dipped and hung up to dry. The result is a cold water paint which will hold and not flake. It is better to be safe and use a heavier gauge lath. The modern stucco house of the present day is with reinforced concrete floors, studding of metal, doors and window frames of metal, the result being a fireproof and vermin-proof structure. The difference in cost between it and wood is so slight that the insurance charge for ten years will pay it, and the building will not deteriorate.

There was quite a little discussion over some of the points of Mr. McCullough's address, which brought out that the last coat could be put on effectively with a broom or with a paddle. Plaster board could also be used in place of metal lath, if proper suction effect is provided, but it must not be quite as wet stucco used as on other work. There must be no lime in the first coat. The plaster board will save the cost of lath and of one of two coats.

A lengthy discussion ensued here regarding the best methods of constructing cement silos. The discussion was entered into by several of the delegates and was very interesting to those engaged in this kind of business. One point brought out was that air spaces should be sealed in order to keep from having any circulation of air, as it was the circulation that caused the cold to travel from the outer walls through to the inner walls, whereas this was not nearly so likely to happen if there was no circulation.

President Murphy interrupted the discussion and said that it would be taken up again at the afternoon session.

## AFTERNOON SESSION, FEB. 28, 2 P. M.

The first address was that of C. M. Powell, assistant engineer of the Universal Portland Cement Company, who gave a very interesting and comprehensive address on the subject of "Cement Drain Tile Plants." His paper was very lengthy and covered the subject from beginning to end. Illustrations of the methods of constructing plants and some of the most successful plants were shown.

The next paper was that of Albert A. Pollard, a prominent architect of Minneapolis, who gave an illustrated talk on the subject of "Economics in Concrete Construction."

### ECONOMIES IN CONCRETE CONSTRUCTION.

By A. A. Pollard.

The builder in the country has come to an appreciation of cement, but while the economies to be found in the use of concrete about a small place and for farm buildings are quite as marked as in our city construction, the rural builder is slower than the city man to leave the traditional forms of masonry construction and slower to adapt his labor to the qualities of the newer and more flexible material. When the farmer builds a foundation, he rarely calculates the cost of any other form than wall. The masonry known to him and to his father is carried up in walls. Steel frame and reinforced types have not made spandrel construction an every day sight to him as to the city man.

Consider an outbuilding or simple house where the rural builder provides the labor. The building will often be such that the loads can all be carried on piers and girders, at a considerable saving in expense for forms, material and labor. The builder needs only to determine and obtain the amount and method of reinforcement needed and piers may often be built without reinforcement. In building piers into the side of a bank, the earth will frequently give three sides for the pier form.

Whereas the farmer has regarded a cellar under his building as a luxury, it now appears as a logical accessory, that becomes almost a necessity, for the storage of root crops and further calls for a concrete slab over the root cellar wherever placed in a dwelling house.

Given a case where the soil will stand up as cut and will not be subjected to conditions that may cause it to move readily upon itself, we have to provide support for the structure above and need give little attention to retaining qualities of our foundation. In such a case for a building not over two stories high piers about ten feet apart, where the basement is eight or nine feet high, with thin spandrel walls or panels, there is a saving of forty-five per cent of concrete and a net saving of about thirty-five per cent in cost, as compared with continuous solid walls.

In the construction of such a cellar and where exit from the cellar floor is to be easy, it may prove economical to leave most of the earth unexcavated at the middle of the cellar and to build the floor-centering upon short posts from the natural grade. To avoid cutting lumber where cutting would spoil it for future uses, a saving may be effected by placing the timbers at a slant. In this matter of salvage the farmer has the advantage of the city contractor for all sorts of dimension stuff are constantly wanted about a farm and centering material is an almost permanent asset.

After the piers, girders and slab are in place and girder forms removed, the earth in spandrel panels is cut to form the neat rear of the panel slab, a mesh of ordinary woven wire fencing is placed between piers, stayed by the strip-ties before mentioned, forms are placed from pier to pier of boards simply held in place against the piers and the form is carried up as the concrete is placed until the girder is reached.

Detail of cellar construction shows an exposed end wall of solid concrete and long, unexposed pier-and-panel walls. Where no great pressure can ever be brought upon it this basement wall may be made of concrete blocks, but where formwork is required for one side only, and a thin wall is sufficient, the solid concrete will generally be more economical.

The details of pier and footing shows how simply piers may be formed in stiff earth and how the spreading foot under the bank is well retained beneath the superimposed earth. In the construction of cellars under old houses where there has been no cellar, or at best only a log-lined storage cellar under the middle of a house, supported on wooden posts, the method illustrated offers an inexpensive revision with retaining features by means of occasional buttress piers, the simplest of walls poured to the top of existing earth grade and built above of any desired and adequate masonry up to the existing floor.

For root cellars independent of buildings there can be nothing so easy as concrete to handle, where the bank will serve as one-half of the form, and even the reinforced slab for the top is a simple and inexpensive affair, as compared with the occasional loss of a cow suffered by allowing the animal to stray over the crumbling, filtering sods placed on the decayed pole ceilings, which we see tumbling in ruin throughout the country after being built only 5 or 6 years.

One of the most economical applications of concrete will be found in the necessary pit, which is to be kept as a dry closet and dosed with dry dirt or dust whenever used.

Where a driven well is used, a pit to receive the antifreeze pump, and probably to serve as a place of cold storage, the curbing is commonly made of concrete segments, but I prefer the curbing of concrete poured into ring form, while the earth will serve as the outer cylinder. The walls need not be thick. A little wire may be used at the top if the walls are very thin. It is easy to get the top even and level, as worked in plastic state and frost does not throw the curb top out of line and level. It needs no skilled labor to get the curb right in place. no mason skilled in laying blocks. Light reinforcement of mesh is needed in both top and bottom of such a cover.

As to concrete blocks, the rural builder should not condemn them because of difficulty in getting a machine or in getting ready-made blocks. Excellent blocks are made in the simplest of plank forms or moulds, and can be made to work smoothly and easily for the varieties which give the continuous air-space wall. I have found since an excellent lining, a heavy old door hinge and a swinging angle brace provide all equipment needed for a simple machine which any handy farmer can make.

In any work about the farm where it can be used, cement shows advantage over building materials having inherent limitations and refractory nature. One use of cement and concrete generally suggests another in the very varied farm requirements. These suggestions are only a few where economy will result from its use.

Martin T. Roche then gave an interesting talk on the "Marketing of Cement." Mr. Roche is connected with the Northern Brick & Supply Co. of St. Paul, one of the largest retail firms in that city.

Mr. Roche was followed by G. W. Burch, of the Huron Portland Cement Company, Alpena, Mich.

## MORNING SESSION, MARCH 1, 10 A. M.

Captain Geo. W. Freeman, U. S. engineer, working under the direction of Major Schunk, chief engineer of the St. Paul construction work, gave a sketch of the plans for the high dam over the Mississippi river, between Minneapolis and St. Paul. The power house is to be on the St. Paul side of the river and the locks on the Minneapolis side, work to be completed in two years, depending upon the action of Congress in granting the appropriation. The work being done is the widening of dam No. 1 or the lower dam, which is the proposed site for the higher dam. The cost is estimated at $800,000.00, including dam No. 2 and the building of the power house, and $180,000.00 the liberal estimate of flowage rights at $1,000.00 an acre, including 14 acres, which are the west side flats in Minneapolis.

Chas. E. Sims, secretary of the Worthing Con-

crete Company, Worthington, Minn., read a paper on "The Manufacture of Cement Drain Tile." We are sorry that we cannot print this paper, which is full of meat, and was highly enjoyed by all who were present.

C. A. P. Turner, who was down on the program, failed to appear.

## AFTERNOON SESSION, MARCH 1, 2 P. M.

President Murphy appointed the following committees:

Resolution Committee: Edward H. Cobb, Minneapolis, Minn.; Ernest McCullough, Chicago, Ill., and William Kingsley, Faribault, Minn.

Committee on By-Laws: J. C. Van Doorn, Minneapolis, Minn.; C. K. Anderson, Owatonna, Minn., and W. C. Berry, Minneapolis, Minn.

Nominating Committee: Martin T. Roche, St. Paul, Minn.; L. V. Thayer, Minneapolis, Minn., and Frank Pay, Mankato, Minn.

While the committees were out making their reports, James Houghton, building inspector of Minneapolis, read a paper on "Reinforced Concrete Construction in Minneapolis."

### REINFORCED CONCRETE CONSTRUCTION IN MINNEAPOLIS.

By James Houghton, Building Inspector.

I received an invitation from Mr. Berry, the chairman of your Program Committee, the 1st of February, requesting me to give you a paper or talk on this occasion, and I informed him that I would do so, and that my subject would be "Reinforced Concrete in Minneapolis."

Previous to the year 1904 there had been erected in this city only nineteen fireproof buildings, and the construction of some of these was not such as would pass our present requirements for fireproof structures. Portland cement, if used at all in the construction of these buildings, was so used only in the mortar with which the brick, stone and tile were laid. The construction of buildings for warehouse purposes formerly was usually of the heavy "mill construction" type, while those designed for ordinary stores, factories and offices were of the ordinary joist construction.

As I said before, in 1904 there were only nineteen so-called fireproof structures in this city. On January 1, 1910, the number had been increased to 271, which, we think, is a very good increase, considering that this is a lumber manufacturing city.

There have been two causes that have produced this result. First, the introduction of reinforced concrete as a material for building construction, and, second, the radical changes we have made in our building ordinances, requiring, as we do, that fireproof construction be used in the erection of many classes of buildings.

In February, 1904, the building department issued a permit for the first building to be erected in this city, in the construction of which reinforced concrete slabs were to be used. The design of this building provided for exterior walls of brick, with interior columns of cast iron and with steel beams or girders. The floor slabs only were to be of reinforced concrete. A thorough test was made of the slab construction after the building was completed and the concrete had properly hardened, and the results of such test were very satisfactory to all concerned. I may honestly say that it was even better than I had anticipated.

From the start this type of construction met with considerable opposition from the more conservative, old-time architects and contractors, and I admit that I am somewhat of a conservative myself and "had to be shown."

In 1906 the combined floor area contained in fireproof buildings erected that year was twenty acres, or 869,016 square feet, while the street frontage those buildings occupied presented aggregated .625 of a mile.

The total cost of the fireproof buildings erected in this city in the year 1909 was 26 per cent of the total expenditure in building construction, and for the year 1910 it was 28 per cent.

Of the 56¼ acres of floor area in 1910, 39 acres, or 69⅓ per cent of the total area, are contained in buildings of the reinforced concrete class, and the expenditure represented by the erection of 46 fireproof structures and fireproof additions and alterations of others during 1910 amounted to $4,069,000.

We are now about completing what is said to be the largest reinforced concrete building in the United States, and it is certainly a credit to all who were in any manner interested in its construction.

Now, just a word to prove to you that one of the prime causes for this large increase in the number of fireproof buildings erected in this city during the past few years is owing to the rigid requirements of our building ordinances.

One critic unburdens himself in this manner by saying that "the failures and difficulties with reinforced concrete construction are largely traceable to rules and regulations drawn by members of the engineering profession who have had little, if any, experience in the actual construction of this line of work. In other words, those ignorant of concrete construction in the engineering field today have presumed, for a considerable time in the past, to dictate the rules and regulations under which those who know how to construct safely shall execute their work."

The author of such a statement should have cited at least one case in which there has been a failure of reinforced concrete construction where the ordinances, rules and regulations pertaining to reinforced concrete design, prescribing the material to be used, the methods of mixing and depositing the concrete, the care of the same after it had been so deposited and the time for the removal of the forms, etc., had been complied with. I recall none in any city.

Now listen! Our Minneapolis ordinances provide:

First—That every building hereafter erected or altered to be used as an apartment hotel, apartment house, flat building, dormitory, hotel, lodging house, tenement, club house or boarding house shall be of fireproof construction if such building is more than three stories in height.

Second—Every building to be used as a hospital, asylum or institution for the care or treatment of persons shall be of fireproof construction if such building is more than two stories in height.

Third—Every building to be used as a school or convent building shall be of fireproof construction if such building is more than one story in height. We do, however, allow a wooden roof on a two-story school or convent building.

Fourth—All theaters shall be built fireproof, also all churches seating more than 1,000 people.

I do not believe that any other city in the United States is safeguarding the interests of the people in a better manner in these respects than we are right here in Minneapolis.

We believe that in all cases where the design has been properly executed and carefully checked, and a failure occurs, it is generally due to one, or to a combination of the following causes: poor materials or careless execution of the work, owing to incompetent superintendence.

While our own ordinances governing reinforced concrete construction are not perfect, and will undoubtedly need such further amendments as experience and a more scientific knowledge of the subject may dictate, yet I think that we may congratulate ourselves thus far upon the success which we have had with the use of this type of construction in our city. The dangers accompanying the use of this type of construction are many, unless the builder having the work in charge, as well as the men under him, are honest and capable in their work. The quality of the steel, stone, sand, cement and water used in the construction of the buildings are very important factors in the production of a perfect piece of work, and given these even of the best quality, if the work is improperly executed, through lack of competent supervision, failure of the structure is liable to occur.

The greater part of reinforced concrete construction work can be performed with unskilled labor, and herein lies one of the greatest dangers in the use of this material. We cannot too strongly emphasize the fact that there must at all times be employed on the

W. S. KINGSLEY, FARIBAULT, MINN., PRESIDENT NORTHWESTERN CEMENT PRODUCTS ASSOCIATION.

work a sufficient number of skilled men, whose duty it shall be to see to it that the materials used are of the best quality, that the reinforcement is accurately and properly placed, that the forms are secured in a firm and rigid position, and that the concrete is mixed and deposited in such a manner as to secure the best results.

One thing should be thoroughly understood, however, by those having in mind the erection of concrete buildings, and that is that the limited supervision which the building department is able to give such work, owing to the small number of inspectors employed, is not sufficient, and means for more adequate supervision and inspection should, therefore, be provided by the owners erecting such buildings. One of the most useful and valuable adjuncts connected with our building department is our testing laboratory. We could not intelligently perform our work without the knowledge which we obtain by the tests which we make there.

Manufacturers are making constant efforts to introduce new and untried materials into building construction, the value of which has not yet been determined nor their utility proven. Furthermore, I am sorry to say that some manufacturers are not as careful as they should be in keeping their products up to the required standards.

In closing, let me congratulate the officers and members of your association on the zeal and enterprise with which you are striving to spread the knowledge of the merits of your products, and on the educational benefits which you receive by meeting in these conventions and exchanging ideas relating to your business. Let me assure you that our department is always at your service, and if at any time we can accommodate you by testing materials for you, or in any other way, we shall be glad to render such service.

The next paper was that of W. E. Martin, on the subject of "Properties of Cement Paint." Mr. Martin is superintendent of Forman-Ford & Company.

### PROPERTIES OF CEMENT PAINT.

By W. E. Martin, Superintendent Paint Factory of Forman, Ford & Co.

You all know that it takes cement, sand, gravel and water to make concrete, but perhaps few of you know about cement paint. It takes a very different process and formula for a good concrete paint, and many mistakes have been made by trying to use house paints or a paint with a linseed oil base on concrete. Cement paint, or a paint for concrete purposes, has come to the front and proven its value and has created a large demand for itself. I will try to show you where a good cement paint is of value to the contractor of concrete buildings.

First—Cement paint is dustproof. By this I mean to say that after a concrete floor has been painted with a proper cement paint that the paint will combine itself with the surface to such an extent that it will not allow the concrete to wear off and dust up, such as has been the case. Factories that have fine machinery, warehouses that store fine pianos and furniture; in fact, all big plants that do work where dust is an injury to their work appreciate a good cement paint and demand it.

Second—It is waterproof. The nature and the vehicle used in the cement paints are such that they penetrate into the surface, fill up all sand and air holes and make it a solid, even surface for garages, swimming pools, stables or any place where lots of water is used, and is the ideal paint. For the inside of basements and cellars, where dampness is drawn through the concrete from the outside pressure of water, making the walls damp and wet, it has proven a great benefactor, not only to keep those walls dry but to keep them from corroding and crumbling away.

Third—It is sanitary. Take our public buildings, our theaters, railroad stations, the grandstands of our state fairs, schools, jails, hospitals, etc., cement paints are specified, and it has been demonstrated that those concrete floors painted with cement paint can be scrubbed and cleaned and no germ, may it be caused by spit, tobacco or in any other way, has a chance to spread and diseases are prevented.

Fourth—It is cheerful and stops resounds. Any floor painted with a nice, clean color brightens any building or office and not only helps in appearance but deadens the sound of walking thereon and acts as a cushion. Cement paint, or concrete paint, is made of indestructible materials. It is made of pigments, ground together with a vehicle in large water-cooled stone mills, and then thinned to the right consistency with penetrating liquids and colored with limeproof coloring matter. The pigments are of different value and nature. One is for the body and color, another for a binder, and a third for a filler.

All these pigments are indestructible, insoluble in water and unaffected by heat or acids. The vehicle is made of a gum rosinate found in Africa, fused and heated at 450 degrees for several hours, reduced with a scientifically treated China wood oil and the best penetrating spirits that can be found.

In all, a concrete paint, or cement paint, is made for its purpose, and any member of the association who wishes to know more about it and wishes to ask any questions, I will be only too glad to furnish same at any time for the asking and the good of the cause.

The Committee on Nominations made the following recommendation for officers for the ensuing year, all of whom were elected:

President, W. S. Kingsley, Faribault, Minn.
Secretary, J. C. Van Dorn, Minneapolis, Minn.
Treasurer, J. M. Hazen, Minneapolis, Minn.
Vice-president, H. E. Murphy, Wisconsin.
Vice-president, C. H. Atkinson, South Dakota.
Vice-president, A. G. Peterson, North Dakota.
Vice-president, D. L. Bell, St. Paul, Minn.
Vice-president, C. K. Anderson, Owatonna, Minn.

The Resolution Committee offered the following resolutions, which were adopted without a dissenting vote:

Whereas, The convention just closed, the Seventh Annual Convention of the Northwest Cement Products Association, has been most enjoyable to all who have attended the sessions, and instructive and of great value to the cement industry and manufacturer of cement products,

Therefore, Be it resolved that our heartiest thanks be and hereby are tendered to the officers who have carried the matter through to so successful a conclusion.

Whereas, All berries are good and some berries are better, but that there is one best berry.

Resolved, That W. C. Berry is hereby certified to be the best and soundest berry because of the part he has borne in making this convention a success, and because of his good work at this and previous conventions.

Be it further resolved, That this certificate be engrossed and delivered to him, under the seal and proper endorsements of the Northwest Cement Products Association.

Whereas, Joseph V. Godfrey, a vice-president of the Northwest Cement Products Association, was removed from our midst by death on January 20, 1911, and

Whereas, He stood for all this association stands for, the Square Deal, Honest Work and Full Value, and

Whereas, Each officer and member feels a sense of personal loss, and the association has lost a man of sound counsel and substantial value to the cement industry,

Therefore be it resolved, That the Northwest Cement Products Association extends to the bereaved family sincere condolences, and

Be it further resolved, That the secretary be instructed to spread these resolutions in full upon the minutes and that a suitable engrossed copy be sent to the family of our late officer and member.

Whereas, The Northwest Cement Products Association has been treated by the West Hotel as an honored guest, and the courteous treatment by the management and all the employees has been warmly appreciated,

Therefore be it resolved, That a standing vote of thanks be tendered to the West Hotel.

We, the members of the Northwest Cement Products Association, realizing the importance of the report of the committee on methods of testing and

specifications for drain tile, about to be appointed by the American Society for Testing Materials, do respectfully request the appointment of Wm. H. Kavanaugh, professor of Experimental Engineering, University of Minnesota, as an engineer on that committee. Edgar Marburg, secretary, Philadelphia, Pa. Committee: E. H. Cobb, W. S. Kingsley and Ernest McCullough.

## THE BANQUET.

The banquet was held in the beautiful new dining room of the Hotel Radisson. Although the dinner was announced to begin at 6:30, it was nearly 7 o'clock before all were seated. The first vice-president, Martin T. Roche, was the toastmaster. No better selection could have been made for this position, as Mr. Roche has been identified with the work of the association for so long that he is not only thoroughly familiar with its membership but with its purposes and ideals.

W. C. Berry, chairman of the program and entertainment committee, had charge of the banquet and arrangement of the program. The following was the menu:

**Menu.**

Blue Points
Consomme in Cup
Olives — Celery — Radishes
Halibut, baked, Mornay
Duchess Potatoes
Filet of Beef, Jardiniere
Rissolee Potatoes
Salad Alexandra
Ice Cream — Cakes
Cheese and Crackers
Demi Tasse
Apollinaris — Cigars

During the discussion of the dinner the concrete quartette, composed of "Cement" Berry, "Water" Johnson, "Sand" Clarkquist, and "Gravel" Hanson, enlivened the occasion by college songs and up-to-date melodies. The song which made the greatest hit was a Swedish ditty, which has to be heard to be appreciated. However, we are printing it here for the benefit of our Swedish subscribers, as they will probably understand it. Nobody else does. We were unable to learn by what name it is called, but, no matter what its name, it seemed to hit the crowd as just about right. It ran thusly:

Tu stona fo vee, groat o sill, da
Shu ala lu la, lu la la.
Sharing a see du may tow some
du vill, da—
Shu ala lu la la—
Shu lu, Shu la, Shu lu la lu la la la la.
Sharing a see du may tow some
du vill, da.
Shu ala lu la la.

At the conclusion of the dinner Toastmaster Roche arose and in a few words spoke of the growth of the association and its ideals, and complimented those present upon their magnificent showing. He said that it was a sincere pleasure to preside, and that he was back to where he was previous to his operation. It will be remembered that Mr. Roche underwent a very serious operation over a year ago, and at the time his life was despaired of. However, he has refuted the old idea that a man can't come back by coming back better than ever, both mentally and physically. He said that all the speeches would be limited to three minutes, and drew from his vest pocket an enormous alarm clock, which he proceeded to set down before him, and which immediately started to ring. However, the toastmaster headed it off in time for him to finish his speech, and he then called upon J. C. Van Doorn, who has always been prominent in association affairs, and who has done as much as any man in the Northwest to keep the association spirit alive.

### THE ASSOCIATION.

By J. C. Van Doorn.

It is a pleasure for me to be here tonight and an honor to be the only one named on the program, and I assure you of my appreciation.

We are becoming more closely allied; that is, cemented together, as it were, by this gathering of the Seventh Annual Convention of the Northwestern Cement Products Association, started by a few, seven years ago, getting stronger each year, and if we had everyone here that claims membership it would take three rooms like this one to hold between 1,000 and 1,200 men. You men don't realize how strong we are. Men of every industry in the Northwest are backing you. The Commercial clubs of the Twin Cities are giving moral support, and will give financial aid when necessary, to help us in holding conventions or cement shows, as you had the pleasure of listening to Wallace G. Nye, giving you welcome to the city.

There are few that realize the importance and good of this organization. You come here, meet those in the same line of business, rub elbows and get better acquainted at dinners like this, where 158 men are gathered together at the present time. Because you are a member of this association you cannot buy any cheaper, either machinery, machinery supplies or any other kind of material, but it saves cash many times over what you spend in these two days for what you learn from the papers and discussions before the convention.

I mention that you cannot buy any cheaper because of being a member of this association on account of a letter received a short time ago addressed to the association. The man who wrote that letter wanted to purchase two tons of cement and would not join the association because the manufacturers of Portland cement had referred his inquiry to the local dealer.

You gather here 150 to 200 strong from all over the Northwest. You meet many men doing your kind of work; you ask questions and I believe that you get very satisfactory answers, whether in the convention hall or any place that you meet men that are doing work. You also meet the traveling men on the road selling the building supplies and material; you ask them questions they will know, and if they don't know you won't know that they don't know it, as a traveling man has a way of answering each question with a direct answer or evade a direct reply.

Now comes the general industry—Cement, with a capital "C." I have just returned from Chicago, the Windy City, where for nine days cement was king. Think of the development. Does anyone here except cement men know of the development? About 1870 there was one mill in this country manufacturing Portland cement—one barrel daily. Since then the industry has grown and is now very large, with output for the following years: 1890, about 300,000 barrels annually; 1900, about 12,000,000 annually; 1905, about 42,000,000 annually; 1908, about 58,000,000 annually; 1909, about 62,000,000 annually; 1910, estimated, 74,000,000 barrels.

Exact figures for 1910 are not yet out. Think of what this means—74,000,000 barrels means 280,000,000 cloth sacks or a little over, and the investment in the cement industry, not including any of the tools and fixtures of the contractors, is about $250,000,000. An industry with such growth in a very few years needs just such meetings as we are having in Minneapolis today and tomorrow. Each is benefited just so much as each takes part in these meetings. Mingle with those that do your kind of work and you will get information that will help you in your work after returning from the meeting, in addition to the papers and discussions before the convention, which will be sent to you in the form of proceedings of the convention within a few weeks.

I want to make a little announcement here. Many of

J. C. VAN DOORN, MINNEAPOLIS, MINN., NORTHWESTERN SALES AGENT UNIVERSAL PORTLAND CEMENT CO.

you have heard it, but there was one man—a very hard and earnest worker for our association who has passed away recently—our vice-president, Joseph V. Godfrey, of Moorhead, died on January 20, and I trust that the Resolutions Committee will adopt proper resolutions, to be engrossed on the books of the meetings and engraved and sent to his family.

The next number on the program was some beautifully rendered songs by Miss Carolyne Thomson. The banqueters did not wish to let Miss Thomson go, and she was repeatedly encored until she had sung four separate numbers. She was presented with an enormous bunch of roses by Mr. Berry on behalf of the association.

Robert Crawford, of the Chicago Portland Cement Company, was next introduced by Mr. Roche as the live wire publicity manager, who is making the AA brand famous. Mr. Crawford is a young Scotchman who has only been in this country a few years and has a rich accent, very pleasing to the ear. He is an indefatigable worker and has turned a few tricks in the advertising line which have made his older brothers sit up and take notice. Mr. Crawford said:

"You have the interest and material to start in and improve the success of the cement shows in the middle west. You have also back of you the Minneapolis press. It is something to know what the interest is in the cement business. It is up to the association to make it more. The people are eager for information about cement and the use of cement. I told an editor yesterday how many sacks it required to ship the output last year. He indicated what the press is willing to do. The automobile industry has just had in one paper 171 columns of advertising and twelve pages of reading matter to go with it. If we had twelve pages of cement show news, what could we not do? I don't see why we can't take up where the association left off in 1909 for various reasons, and make the next cement show the greatest in the country."

The toastmaster added that shows should be held in all the big cities to convince the people that concrete is the best building material on earth.

Probably the most enjoyable feature of the entire evening was a monologue by W. J. Nolan, who is a member of the legislature. He told some very witty dialogue stories, and kept his hearers in a constant roar of laughter from the beginning to the end of his talk. In fact, they were loathe to let him sit down at all, and he was compelled to tell several stories after his time limit was up.

Adolph Moss gave a violin solo, accompanied by James Shand on the piano, which was heartily enjoyed.

James Houghton, building inspector of Minneapolis, next addressed the association. He was followed by the Daniel sisters, who are widely known in vaudeville, and who gave a terpsichorean exhibition.

B. F. Lippold was next called upon to speak for the trade press. He complimented the association upon its magnificent showing, spoke of the early development and growth of the organization, and wound up by urging the members to read their trade papers more closely.

President Roche next called upon the Hottentot Quartette, composed of four negroes, and they sang some coon songs in inimitable style. Other speakers during the evening were Charles E. Sims, secretary of the Interstate Tile Association, of Worthington, Minn.; Samuel E. Matter, Duluth, Minn.; W. S. Kingsley, Faribault, Minn.; A. G. Peterson, Hankinson, N. D.; Capt. Geo. W. Freeman, U. S. Engineer, St. Paul, Minn., and Ernest McCullough, of Chicago.

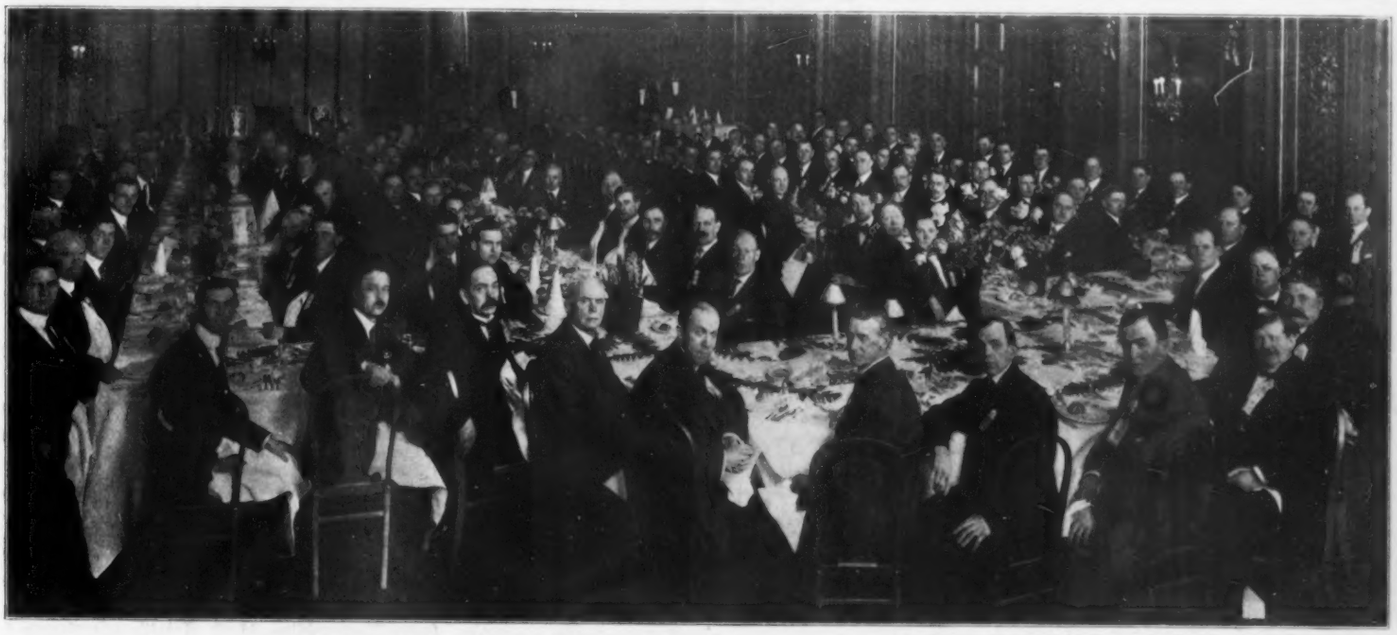
### The Attendance.

John F. Anderson, Alexandria, Minn.
C. K. Anderson, Mammel Bros. & Anderson, Owatonna, Minn.
J. C. Appleton, 104 West 36th street, Minneapolis, Minn.
B. F. Affleck, Universal Portland Cement Co., Chicago, Ill.
C. H. Atkinson, Watertown, S. D.
A. N. Arvold, Minneapolis, Minn.
P. H. Atwood, Armstrong, Iowa.
J. L. Alton, Alexandria, Minn.
W. J. Bailey, Inkster, N. D.
E. J. Bell, New Richmond, Wis.
W. C. Berry, Minneapolis, Minn.
J. C. Burch, Iowa Portland Cement Co., Des Moines, Iowa.
D. L. Bell, 270 Jackson street, St. Paul, Minn.
H. L. Biegert, Montevideo, Minn.
E. H. Bassett, Northwestern Lime Co., St. Paul, Minn.
Chas. W. Bradley, Anchor Concrete Stone Co., Rock Rapids, Iowa.
Peter S. Burghart, Soo Line, Minneapolis, Minn.
J. W. Beckman, Chicago Portland Cement Co., Chicago, Ill.
G. W. Burch, Detroit, Mich.
W. F. Chadbourne, Elk River, Minn.
E. L. Cox, Marquette Bldg., Chicago, Ill.
T. R. Coughlan Co., Mankato, Minn.
Robert L. Cobb, Hood & Penney, Phoenix Bldg, Minneapolis.
R. J. Cheney & Co., 716 11th avenue South, Minneapolis, Minn.
Ed. Carlson, Stillwater, Minn.
E. H. Cobb, Hydraulic Pressed Brick Co., Minneapolis, Minn.
R. R. Colburn, Hydraulic Pressed Brick Co., Minneapolis, Minn.
G. V. Clark, Kenmare, N. D.
L. Cofield, Annandale, Minn.
Wm. Couter, Shakopee Lime & Cement Co., St. Paul, Minn.
Geo. N. Childs, Eau Claire, Wis.
F. M. Clutter, Cement World, Chicago, Ill.
W. H. Carson, New Rockford, N. D.
C. W. Christenson, Fargo, N. D.
R. Crawford, Chicago Portland Cement Co., 108 La Salle street, Chicago.
Fred Chaffer, Minneapolis, Minn.
L. C. Diamond, Mankato, Minn.
W. J. Duyer, Medina, N. D.
Electrical Cement Post Co., Hillsboro, N. D.
Anton Evenstad, Lakato, N. D.
Nels Erickson, Boston block, Minneapolis, Minn.
Olaf Edland, Hannaford, N. D.
Albert Erlitz, Stillwater, Minn.
Dr. W. M. Edwards, Bowdle Art Stone Co., Bowdle, S. D.
R. Endquist, Minneapolis, Minn.
H. P. Fulton, Marshall, Minn.
Capt. Geo. W. Freean, U. S. Custom House, St. Paul, Minn.
Frank George, Alexandria, Minn.
S. J. Graves & Sons, 8 North Fourth street, Minneapolis, Minn.
F. D. Gould, Fairmont, Minn.
H. C. Gerlach, Mankato, Minn.
W. L. Grathwal, Northwestern Lime Co., St. Paul, Minn.
W. L. Greenly, Minneapolis, Minn.
C. H. Greenleaf, Chicago Portland Cement Co., Chicago, Ill.
J. T. Ganley, Minneapolis, Minn.
Henry Gerdes, Minneapolis, Minn.
K. P. Gregg, St. Hilaire Retail Lumber Co., Minneapolis, Minn.

H. M. Hickok, L. O. Hickok & Son, Minneapolis, Minn.
Chas. Hein, Gaylord, Minn.
A. W. Haugse, Garretson, S. D.
Wm. Hurst, Glendive, Mont.
J. M. Hazen, Minneapolis, Minn.
John K. Hoppin, Minneapolis, Minn.
R. K. Hafsas, Aberdeen, S. D.
M. R. Hussey, Crookston, Minn.
Horse Shoe Cement Block Co., 3708 Second avenue South, Minneapolis, Minn.
George Horton, Blackduck, Minn.
P. C. Hansen, Springfield, Minn.
E. Herwick, Park River, N. D.
Ludwig Hegardt, Round Lake, Minn.
G. H. Herz, Northern Pacific Railway, Minneapolis, Minn.
H. N. Hetting, International Falls, Minn.
James Houghton, Building Inspector, Minneapolis, Minn.
Hellner & Standell, Crookston, Minn.
L. J. Hammel, Owatonna, Minn.
Carl Hanson, Minneapolis, Minn.
Earl Hanson, Minneapolis, Minn.
E. H. Inscho, Deer River, Minn.
Tom Ingstad, Montevideo, Minn.
Improvement Bulletin, Lumber Exchange, Minneapolis, Minn.
Jean Johnson, Hydraulic Pressed Brick Co., Minneapolis, Minn.
H. D. Jacobson, Clarkfield, Minn.
W. C. Jones, St. Hilaire Retail Lumber Co., Minneapolis, Minn.
John Kasper, Faribault Cement & Improvement Co., Faribault, Minn.
R. E. Klarquist, Minneapolis, Minn.
W. L. Korthaur, Ward, S. D.
W. S. Kingsley, Faribault, Minn.
J. J. Kehoe, 1157 Laurel avenue, St. Paul, Minn.
F. A. Kershaw, Kent Machinery Co., Kent, Ohio.
P. A. Kype, Minneapolis Minn.
Paul Lawin, Long Prairie, Minn.
Landers - Morrison - Christenson Co., Lumber Exchange,, Minneapolis, Minn.
Jens O. Lee, Perley, Minn.
C. W. Lundquist & Co., 1418 Adams street Northeast, Minneapolis, Minn.
Nels Loitved, Bemidji, Minn.
Lakefield Tile & Drainage Co., Lakefield, Minn.
J. Lanesen, Aberdeen, S. D.
Lee Larson, Farmington, Minn.
A. H. Laughlin, Lisbon, N. D.
Henry Larson, Jamestown, N. D.
B. F. Lippold, Rock Products, Chicago, Ill.
Paul A. Law, Minneapolis, Minn.
H. E. Murphy, Manitowoc, Wis.
B. F. Meinecke, Marmarth, N. D.
L. A. Moore & Co., Minnesota Transfer, Minn.
E. S. MacGowan, Minneapolis, Minn.
E. T. Marshall, Claremont, Minn.
W. H. Morse, Lampert Lumber Co., Breckenridge, Minn.
Ole Mattson, Lake Netta, Minn., R. F. D. No. 2.
Wyoming.
Marshall Tile & S. W. Co., Marshall, Minn.
P. J. Mayer, Hydraulic Pressed Brick Co., Minneapolis, Minn.
E. Miller, 406 Lumber Exchange, Minneapolis, Minn.
S. E. Matter, Standard Salt & Cement Co., Duluth, Minn.
Chas. Mosher, Faridault, Minn.
W. E. Martin, Supt. Forman, Ford & Co., Minneapolis, Minn.
A. Moss, Minneapolis, Minn.
J. U. C. McDaniel, Chicago Portland Cement Co., Chicago, Ill.
D. H. McFarland, Minneapolis, Minn.
F. W. McKellip, Faribault, Minn.
Ernest McCullough, Patterson & Davidson, Chicago.
Peter Nelson, Huron, S. D.
John A. Nelson, 226 South Fourth street, Minneapolis, Minn.
J. B. Nelson, Mankato, Minn.
New Prague Cement Works, New Prague, Minn.
Nelson & Pederson, Butte, Mont.
G. H. Nash, Red Lodge, Mont.
N. O. Nelson, Wadena, Minn.
O. W. Newman, Hankinson, N. D.
H. A. Nolin, S. Birch & Sons, Fargo, S. D.
Wallace G. Nye, Minneapolis, Minn.
P. J. Nyvall, Minneapolis, Minn.
C. E. Nickerson, Minneapolis, Minn.
Ogemaw Mfg. Co., Ogemaw, Minn.
Carl Otis, Lindstrom, Minn.
Frank Pay, Fowler & Pay, Mankato, Minn.
F. A. B. Paterson, Fairmont, Minn.
G. H. Painter, Florence, S. D.
Albert A. Pollard, 2011 Columbus avenue, Minneapolis, Minn.
G. W. Papke, 4004 Lyndale avenue South, Minneapolis, Minn.
C. M. Powell, Universal Portland Cement Co., Chicago, Ill.
H. R. Phillips, Forman, Ford & Co., Minneapolis, Minn.
A. G. Peterson, Hankinson, N. D.
H. S. Palmer, Eau Claire, Wis.
J. A. Pfeiffer, N. W. Exp. Metal Co., Chicago, Ill.
F. S. Phipps, Detroit, Mich.
C. C. Quincy, Atlas Portland Cement Co., Chicago.
Ricketson Mineral Paint Works, Milwaukee, Wis.
J. Lyman Rood, Glenwood, Wis.
C. B. Rowley, Brainerd, Minn.
W. F. Reidell, Rochester, Minn.
J. W. Ross, Eau Claire, Wis.
M. T. Roche, St. Paul, Minn.
A. H. Rulkoetter, Minneapolis, Minn.
A. J. Strom, Benson, Minn.
Arthur L. Snow, Bethel, Minn.
G. Scheurenbrand, Mitchell, S. D.
A. Scheurenbrand, Mitchell, S. D.
Theo. Schumm, Arlington Cement Stone Works, Arlington, Minn.
Henry Skallerud, Box 385, Northfield, Minn.
Harvey B. Smith, 226 South Fourth street, Minneapolis, Minn.
Star S. W. & Block Co., Anoka, Minn.
Jos. A. Sammaroni, Cumberland, Wis.
E. I. Stone, Verndale, Wis.
M. K. Sawyer, Andrus Bldg., Minneapolis, Minn.
John Sandquist, Hudson, Wis.
Chas. E. Sims, Worthington, Minn.
John A. Smith, Kettle River Co., Minneapolis, Minn.
W. D. Sintler, Hayden Auto Block Machinery Co., Columbus, Ohio.
Walter Smith, Atlas Portland Cement Co., Fort Dodge, Iowa.

MARTIN T. ROCHE
BELIEVES IN CEMENTING GOOD FELLOWSHIP
CEMENT
CEMENT DEALER
T. H. COBB
SAYS BRICKS SHOULD BE USED FOR EVERYTHING BUT THROWING AT YOUR NEIGHBOR
ADVERTISING CEMENT
B. F. LIPPOLD
WRITES IN THE ABSTRACT ABOUT CONCRETE
ABSTRACTS ON CONCRETE
RAWSON
R. CRAWFORD
HIS MOTTO IS "ADVERTISE"
PRESIDENT
W. S. KINGSLEY
WHO WANTS TO BE THE NEW MAYOR OF FARIBAULT SAYS, "DAM THE OPPOSITION."
OPPOSITION
DAM
CEMENT
J. C VAN DOORN
FRANK PAY
OF MANKATO
THE QUESTION IN REINFORCED CONCRETE - IS NOT HOW TO KEEP IT UP BUT HOW TO EVER GET IT DOWN

THE ABOVE CARTOON, SHOWING THE CONVENTION DELEGATES, IS BY ARTIST RAWSON, OF THE MINNEAPOLIS MORNING TRIBUNE, AND IS REPRODUCED BY COURTESY OF THAT PAPER.



NORTHWESTERN CEMENT PRODUCTS ASSOCIATION BANQUET AT MINNEAPOLIS, MINN.

Edward Smith, Chicago Portland Cement Co., Chicago, Ill.
James Shands, Minneapolis, Minn.
F. W. Teasdale, 226 South Fourth street, Minneapolis, Minn.
L. V. Thayer, Peerless Branch Machinery Co., Minneapolis, Minn.
Tracy Cement Tile Co., Tracy, Minn.
Walter Thonet, Faribault, Minn.
John Thonet, Faribault, Minn.
C. O. Thoren, Benson, Minn.
R. D. Thurpin, Northwestern Lime Co., St. Paul, Minn.
Mrs. L. M. Thomson, 2426 Blaisdell avenue, Minneapolis, Minn.
Miss Florence Thomson, 11 North Sixth street, Minneapolis, Minn.
M. H. Hhielan, St. Hilaire, Retail Lumber Co., Minneapolis, Minn.
J. C. Van Doorn, 834 Security Bank Bldg., Minneapolis, Minn.
J. H. Viner, Owatonna, Minn.
Henry Vangall, Le Seuer, Minn.
Clement L. Webster, Charles City, Iowa.
Edward Wilson, 3608 Blaisdell avenue, Minneapolis, Minn.
C. N. Warrant, Kasota, Minn.
W. C. Wycoff, Fowler & Pay, Minneapolis, Minn.
W. G. Young, Montrose Cement & Fuel Co., Montrose, Minn.
Eugene Young, 17 South Sixth street, Minneapolis, Minn.

## NOTES OF THE CONVENTION.

The most prominent display was that of the Chicago Portland Cement Company, manufacturers of "Chicago AA," who occupied a space in the center of the lobby. They made the display in conjunction with their Minneapolis dealers, the Hydraulic Pressed Brick Company. Literature of educational value to cement users was freely distributed from the booth, which included the company's latest publication, "From the Raw to the Finished Product." Those in charge of the exhibit were, Robert Crawford, publicity manager, C. H. Greenleaf and J. W. Beckman. The Hydraulic Pressed Brick Company was represented by S. J. Hewson, sales manager, P. J. Mayer, manager of the cement department, and Jean W. Johnson.

The Peerless Brick Machine Company had one of their brick machines on exhibition in one of the front parlors, in charge of President L. V. Thayer and Jack Palmer.

Charles Bradley, of the Anchor Concrete Brick Machine Company, Rock Rapids, Iowa, occupied the same parlor as Mr. Thayer.

The Hobbs Concrete Machine Company had a display in charge of F. S. Phipps.

G. W. Papke, of 4004 Lyndale avenue S., Minneapolis, showed a brick machine.

E. H. Bassett was at the West Hotel during the convention, shaking hands with his old friends in the trade. Mr. Bassett was for a number of years Minneapolis office manager for Fowler & Pay. He is now in charge of the retail department of the Northwestern Lime Co.

The Universal Portland Cement Company kept open house at the West in one of the front parlors. J. C. Van Doorn, the Northwestern sales manager, was in charge, assisted by his noble lieutenant, W. C. Berry.

William A. Couter, of the Shakopee Cement Lime Manufacturing Co., with offices in St. Paul, was at the convention.

William L. Grathwol, the Northwestern Lime Company's cement man, has been making good in large numbers since he took hold. He has been selling Atlas.

J. A. Pfeiffer, of the Northwestern Expanded Metal Co., was on hand mingling with the delegates many of whom he has known for a number of years.

Samuel E. Matter, manager of the Standard Salt & Cement Co., of Duluth, Minn., came down to see what he could find out. He seldom misses a convention. He said he would have liked to have seen a show.

### ESTIMATING CONTEST RESULTS.

As the February issue of our paper went to press before the final result of the estimating contest at the Chicago Cement Show was announced, we print below a complete list of the different tests, with the winners each day and the winner of the final test. The Cement Products Exhibition Company will build the house for Mrs. Bishop, according to plans drawn to her liking. In all probability there will be a contest among architects for the drawing of the plans; this will be announced later.

**Preliminary Contests.**

**Held Each Afternoon at 4:30 P. M.**

| Date. Feb. | Actual Test. | Nearest Estimate. | Winner. |
|---|---|---|---|
| 17th | 38580 | 39133 | Mrs. N. B. Parsons, La-Grange, Ill. |
| 18th | 31220 | 31249 | Mrs. J. J. Manker, 7520 Murphy Av., Chicago. |
| 20th | 78150 | 78280 | Mrs. Lucille Bishop, 649 Deming Pl., Chicago. |
| 21st | 24700 | 24685 | J. F. Forshee, 509 E. 29th St., Chicago. |
| 22nd | 59350 | 59320 | John M. Bulkley, 911 Howard Ct., Chicago. |
| 23rd | 27800 | 27850 | J. E. Kohler, 6412 Union Ave., Chicago. |

Specimen.

Concrete cylinder 4" x 8". Mix: 1:1½:3.....
Concrete tile, dia. 4", length 12", wall thickness 1½", age 27 yrs.....
4" concrete cube made Jan. 4, 1910. Mix: 1:3.....
Concrete cylinder 4" x 8". Mix: 1 sand, 2 granite screenings, 4 1¼" to ⅝" crushed granite.....
4" concrete cube made Feb. 4, 1911. Mix: 1 sand, 2½ of ¼" granite screenings.....
Concrete cylinder 4" x 8". Mix: 1 sand, 1½ Torpedo sand, 1½ Limestone screenings, 1½ slag screenings .....

**Final Test—February 23, 1911—9 P. M.**

Concrete cylinder 4" in diameter, 8" high. Mixture: 1:3.

| Actual Test. | Estimate. | Winner. |
|---|---|---|
| 31280 | 29950 | Mrs. Lucille Bishop, 649 Deming Place, Chicago. |

Professor B. B. Gebhardt, of the Armour Institute of Technology, was in charge of tests; 60,000 lb. Olsen Testing Machine used.

### HOLLOW BLOCK SILOS RECOMMENDED.

Hollow block silos will be recommended above all others, it is reported, by the extension department of the Iowa College of Agriculture, at Ames, Iowa, which next summer will send out men under the direction of its extension department to urge the use of silos by farmers of the Hawkeye State. These men will assist farmers in putting up the silos, the only consideration being that their expenses are paid. In the course of the construction work at each structure a meeting will be held, when neighbors will be advised as to the advantages of the silo.

Portland Cement Tile and Block Company, of Portland, Ind., has been incorporated with a capital stock of $15,000.00. Manufacturing cement products. Incorporators, E. Y. and L. P. Beard and J. M. Minch.

Julian Woods and Earl Clayton, of Bushnell, Ill., have formed a partnership to do a general concrete business, manufacturing and selling blocks and contracting for sidewalks, floors and buildings.

The concrete firm of M. L. Whitney & Company, of Grayville, Ill., is installing a new brick-making machine. M. L. Whitney is enthusiastic over the success of the Cement Show at Chicago.

Joseph Jennings and Charles Shaftenberg, of Cedar Falls, Iowa, have formed a partnership in the cement contracting business.

### THINGS ARE LOOKING BRIGHT.

J. B. Shaw, secretary of the Marsh Company, concrete machinery manufacturers, Chicago, said that they were having a good demand for their machines and that everything was looking bright for the coming season. "There are so many new buildings in course of construction," he said, "that the year should be a banner one for all in any way interested in building. Money is tight, but that is about the only drawback."

WORKS:
DOCK ST. AND
WABASH R. R.

EXECUTIVE OFFICES
BANK COMMERCE BLDG.

WATERPROOF
PORTLAND
McCORMICK
CEMENT
PATENTED THE WORLD OVER
COMPANY
ST. LOUIS, MO.

ENGINEERS CONTRACTORS

ADDRESS ALL COMMUNICATIONS DIRECT TO THE COMPANY

BELL PHONE, OLIVE 3140

MANUFACTURERS

St. Louis, Mo., March 1st, 1911. 191

Rock Products,
355 Dearborn St.,
Chicago, Ill.

Gentlemen:--

Beginning April 1st, please discontinue our quarter page advertisement and insert full page in your issue each month. We will furnish copy in time.

Yours respectfully,

Charles McCormick

President & General Manager

SS

## ATTRACTIVE CONCRETE RESIDENCE.

A type of construction for residences which is rapidly gaining favor among those persons wishing an attractive, well designed, fireproof home at a moderate cost is the "Pebble dash cement stucco." The accompanying photograph shows the residence of Mrs. S. J. Ryan, at Wytheville, Va. It bears the name "Nuska Lodge."

It is of the bungalow type of construction, is only a story and a half in height, but by virtue of the

MRS. S. J. RYAN'S HOME, WYTHEVILLE, VA.

large ground space it covers has as much room as the average residence. The house is built of reinforced concrete, with the pebble dash finish on walls of neat cement. The forms used in the construction work allowed the concrete to be poured in uniformly and after a year's standing in all sorts of weather the walls do not show even hair cracks.

As is the case in any house built of concrete, this one seems to adapt itself to the weather, the house being comfortably cool in summer and warm during the winter months. The pebble dash finish adds much to the attractiveness of the outside walls; it has not the monotonous appearance that is noticed in plain cement finished walls.

The house was built for Mrs. Ryan by the Wytheville Manufacturing Company, of Wytheville, Va., and has attracted considerable attention from those interested in cement construction.

## NEW BELT LINE.

Springfield, Ill., March 21.—Driscoll & McCalman, of Decatur, Ill., did the concrete work on the new belt line built around the city of Springfield by the Illinois Traction system. The overhead bridge at the Chicago & Alton tracks contained 1,000 cubic yards, consisting of two abutments and eighty-eight pedestal piers. This work extended over 2,380 feet. At the intersection of a wagon road the concrete work consisted of two U-shaped abutments so designed as to take care of their load, yet contain only 125 cubic yards of concrete each. A flat top concrete bridge was constructed at the junction with the Illinois Central, which contained 800 cubic yards in addition to the several tons of reinforcement. Marquette Portland cement was used. The gravel (it was gravel concrete of 1:3:5 mixture) was from the pits at Lincoln.

Monolithic Concrete Construction Company has been incorporated in Chicago. Capital stock, $25,000.00. General building, contracting and construction business. Incorporators, F. Thomas Morris, Harry L. Shaver and Burton E. Drury.

## ILLINOIS CONCRETE ENGINEERING.

Springfield, Ill., March 21.—State Highway Engineer Arthur N. Johnson, of this city, has finished the plans for the new $30,000.00 reinforced concrete bridge over the Fox river at Batavia, and they have been submitted to the city council of that city. The structure will be 226 feet long by 60 feet wide. Two end arches of 60 feet each and a center arch of 8 feet are called for in the specifications. The driveway will be 54 feet wide with 8-foot sidewalks on each side.

The Richland Construction Company has been formed at Noble, Ill., with a capital stock of $10,000.00. Incorporators, E. L. Palmer, J. V. Thompson and Charles E. Palmer.

Rooms for cement and concrete testing will be a feature of the new experimental station now in course of erection at Minnesota University, St. Paul. reinforced concrete, with stone facings.

L. P. Wolff, engineer of St. Paul, Minn., has advised the city council of Fergus Falls, Minn., that $91,000.00, the cost of a new concrete dam at a different location, will be cheaper than repairing the structure recently washed out.

Charles Ammons, of Ardmore, Okla., has been awarded the contract to build the new reinforced concrete building for the Ardmore creamery.

H. D. Fulmer Company, Chicago. General contracting and laying composition flooring. $20,000.00. James R. Considine, M. C. Katalik and George P. Talty.

The American Concrete Company, of New York City, has been adjudicated bankrupt by Judge Hough, who appointed Stanley W. Dexter to take charge of further proceedings.

## Side Talk

*in which the Advertiser tells his own story*

### MACHINERY CATALOGUES.

The Webster Manufacturing Company, Chicago, one of the oldest manufacturing concerns in the United States, has recently issued a new catalogue of their machinery. In this catalogue they give complete descriptions and photographs of the machinery they are prepared to furnish, including complete equipments for cement plants, sand and gravel pits, stone crushing plants, lime works and gypsum plants.

The clear-cut photographs in the catalogue help to illustrate the adaptability of their machinery. Their machinery is designed for heavy duty and in handling materials such as stone, cement and gypsum, it is built to meet all requirements. To assist architects and engineers in making up details, the catalogue shows complete dimension tables.

Among the interesting features of the book is a long chapter on belt conveyors, showing several in operation and explaining how they are worked to the greatest advantage.

Without looking at the 650 pages the handsome catalogue contains, it is impossible to get a complete idea of the many machines manufactured by the company.

In addressing the Webster Manufacturing Company, refer to General Catalogue No. 35.

The Glidden Varnish Company has sent a special representative to South America to place their concrete finishes and waterproofings among the architects and engineers. Their Mr. Tornero, a native of South America, sailed on the 25th of January to locate permanently in Buenos Aires, where he will have entire charge of the development of the concrete coating business of the Glidden Varnish Company, as pertaining to South American countries.

Demands for the Glidden products are coming from every quarter of the globe and their export business during the past year in concrete finishes was enormous. Their principal sources of outlet are India, South Africa, China and South America.

### MARION EXCAVATING MACHINERY.

Bulletin No. 60, issued by the Marion Steam Shovel Company, Marion, Ohio, gives a full description of the Marion excavating machinery, manufactured and for sale by that company. This company has been building excavating machinery for more than a quarter of a century and has a product which is thoroughly reliable. A copy of the bulletin will be sent upon request to their offices.

### BOOKLET ON PORTLAND CEMENT.

A unique booklet on Portland cement has just been printed for free distribution by the Superior Portland Cement Co., of Cincinnati, Ohio. It bears the title, "Superior Catechism," which indicates that the text is in the form of questions and answers. The evident aim was to eliminate all technical language as far as possible for the benefit of the casual reader. The Superior claims of special fineness and low magnesia are emphasized. After the catechism section follows a "Picture Story" of the Superior process, which is well illustrated by a series of halftones made from photographs taken at the Superior mill at Superior, Lawrence county, Ohio. The various stages of cement manufacture from lime rock and shale are quite clearly described in detail. The cover is a realistic halftone view of construction on the Cincinnati, Hamilton & Dayton Railway at Sidney, Ohio, where this product was used.

### A FEW CONCRETE FACTS.

One of the most practical books issued on concrete is being sent out by the Washington Portland Cement Company, Seattle, Wash. It is entitled, "A Few Concrete Facts," and gives statistics on the development in the cement industry, the advantages of concrete, directions for using and mixing concrete, pictures of constructions in which concrete has been used, and a chapter telling why many concrete projects fail and how to eliminate failure. The book will be a valuable one to anyone interested in cement and its products. It can be had free of charge by addressing the above company.

### ISSUE INTERESTING BOOKLET.

"From the Raw to the Finished Product" is the title of an interesting booklet recently issued by the Chicago Portland Cement Company. The booklet takes up the manufacture of "Chicago AA" in all its details, and explains, step by step, the different processes through which the raw materials used in the manufacture of Portland cement pass. It contains more than 70 half-tone illustrations and should provide interesting reading for all cement users.

Copies of the booklet can be had upon request to the general offices of the above company, 108 La Salle street, Chicago.

### DUMP CAR CATALOGUE.

The Continental Car & Equipment Company, 45 East 17th street, New York, has issued an attractive catalogue on dump cars. Among the different cars the above company manufactures are dump cars for contractors, quarries, sand pits, cement plants and others engaged in earth or rock excavation. The catalogue gives such a detailed description of each car that the advantages they possess are easily grasped. The catalogue is numbered 31 m. and can be had upon request to the company's offices.

### CONCRETE MIXER CATALOGUE.

Catalogue No. 7 was recently printed by the Ohio Ceramic Engineering Company, Cleveland, Ohio. The catalogue describes fully the "Lakewood Line" concrete mixers, as well as contractors' equipment, buckets and cars, which this company has for sale. A copy of the book will be sent upon request to the Cleveland office.

### PROTECTION OF CONCRETE SURFACES.

One of the most important questions that presents itself today to the contractor, engineer and architect is that of taking care of cement surfaces along protective, decorative and damp-proofing lines. Cement surface dry out with an unevenness of color and they often set ununiformly, causing a variation in texture or hardness of the surface which causes disintegration in cement floors, due to frictional wear.

Due to the fact that cement construction has assumed such enormous proportions, in keeping with the progressive spirit which has been the keynote of the success of the Glidden Varnish Company, of Cleveland, Ohio, about three years ago they turned over to their research and chemical laboratories the investigation of suitable materials to be blended for the purpose of producing perfect mediums for the treatment of cement surfaces along protective, decorative and damp-proofing lines.

After exhaustive tests conducted by the best research chemists, assisted by practical cement workers, they have brought out a most excellent line of materials, covering every requirement of the architect, contractor and engineer for the treatment of concrete surfaces. The following information will be of interest and value to the architects, engineers and contractors, and we are able to reproduce this information through the courtesy of the Glidden company. The products which make up their complete line of concrete finishes are briefly stated as follows:

Concrete floor dressing, which is applied to cement floors by means of a brush, protecting the floors from dusting and abrasion due to frictional wear, preventing absorption of water, grease, oil and disease germs. Two coats were used, applying the material over a clean, dry surface. The product is made in light and dark drab, terra cotta and tan colors, also transparent. For factory floors the transparent concrete floor dressing is very much preferred, while for floors of schools, hospitals, office buildings and similar buildings, the colored concrete floor dressing is mostly used. Glidden's liquid cement is especially intended for uniforming the surface color of concrete, cement stucco, brick and stone. This material also damp-proofs the building, and besides producing a pleasing decorative effect, insures a damp-proof building. This material is applied by means of a brush—the same as any paint or varnish.

Another product that is being used very largely is Glidden's transparent waterproofing, which is intended for damp-proofing brick, concrete and cement construction without changing the color or texture of the surface. This is the most efficient damp-proofing medium that has ever been developed. They also make a material known as liquid rubber, which is especially intended for use upon exterior surfaces of substructural work with the view of preventing the inroads of dampness into basements. This material is applied by means of a brush, two coats being used. Liquid rubber is also used upon interior surfaces of exposed walls applied directly to the brick or wall construction, previous to plastering, thus affording a perfect waterproof bond between the plaster coat and the wall proper. Liquid rubber thus applied prevents the inroads of dampness through the plaster and protects the wall decorations from disintegration, staining and injury. This material carries special merit along these lines.

One of the most successful products which the company has brought out is known as Glidden's waterproof flat finishes, especially developed for the interior treatment of rough and smooth plastered walls, interior cement and composition surfaces. These flat finishes produce a washable, sanitary finish in soft, rich tones, far more refined than the old lead and oil treatment of walls. The Glidden Varnish Company has just issued its latest booklet on "Advanced Finishes for Modern Building Construction," which fully described the above products and the other materials which they have developed as pertaining to modern building construction, covering concrete and steel structures, and it will be an unusual pleasure for the company to forward, without charge, a copy of their booklets to all architects, contractors and engineers who are interested in having the valuable information which is conveyed through the medium of their booklet.

If you have any unsettled questions in your minds relative to the treatment of cement and plaster surfaces, either exterior or interior, you will be well repaid by taking up such subjects with the Glidden people, whom we feel assured can be of great value to you in determining methods of treating such surfaces along protective, decorative and damp-proofing lines.

### WILLIAMS' PATENT GRINDERS.

Williams' patent grinders, manufactured by the Williams Patent Crusher & Pulverizer Company, of St. Louis and Chicago, furnish good subject matter for a catalogue recently issued by the company. The grinders are only one type of the many different machines manufactured by the company. This company is prepared to completely equip a cement mill, and their arguments for their machinery are put forth in such a manner in the catalogue that it would pay an interested person to write to either of their offices for a copy of the book.

### BOOHER'S BRICK MACHINE.

Recently the Booher Brick Machine Company, of Little Rock, Ark., has placed the Booher brick machine on the market. It lays claim to much merit. Among its distinctive features are its simplicity of construction; that it makes each brick on a pallet and the brick itself is not touched until the cement has set, and that the pallet makes a faced brick claimed to be equal to any faced brick on the market. The machine turns out four rows of twenty-five brick, or 100 brick at a turn, and with a full crew the machine can discharge 100 brick every two minutes, 30,000 per day.

An architect in Hot Springs, Ark., wrote to the firm as follows: "Having thoroughly investigated your product, I have specified their use for two residences to be built in this city."

### NO AD IN THIS ISSUE.

Evidently the Cement Tile Machinery Co., of Waterloo, Iowa, who are the makers of the popular Schenk Cement Drain Tile Machine, the Perfection Concrete Mixer, the Four-Way Block Machine and the complete line of S. & S. Concrete Machinery and Equipment have more work on hand than they are able to attend to, for they advise us that they will send no copy for the March issue of this publication owing to the fact that time is too precious.

If the reader is interested in concrete machinery of any kind we suggest that he refer to the February issue of this paper, wait until the April issue or, better still, write the Cement Tile Machinery Co. for further particulars regarding the S. & S. line.

# CLASSIFIED ADVERTISEMENTS

Advertisements will be inserted in this section at the following rates:

**For one insertion.....25 cents a line**
**For two insertions.....45 cents a line**
**For three insertions.....60 cents a line**

**Eight words of ordinary length make one line.**
**Heading counts as two lines.**
**No display except the headings can be admitted.**

Remittances should accompany the order. No extra charges for copy of paper containing the advertisement.

### WANTED.

**If you are in need of or wish to sell anything which comes under any of these classifications, write us. If you have something not coming under these classifications we will create one for you.**

## EMPLOYMENT WANTED

### SUPERINTENDENT OF LIME WORKS.

Position wanted as superintendent of lime works. Fourteen years' experience, a hustler and can furnish best of references. Address D. O. S., care ROCK PRODUCTS.

### SUPERINTENDENT

Wanted—Position as superintendent of quarry and crushing plant. Eight years' experience in large plants. References and further information gladly furnished.
Address 797, care ROCK PRODUCTS.

### SUPERINTENDENT

Wants to get in touch with parties contemplating building glass or steel sand mills, drying or crushing plants. Fifteen years' experience in building plants and the supervision of same, or will accept position as superintendent to operate under live management. Address "RESULTS," care ROCK PRODUCTS.

### 25 YEARS' ENGINEERING

and superintending, in erecting and operating stone crushing plants, opening quarries and handling men; familiar with all details. Reference, last employer. Open for engagement. Address 799, care ROCK PRODUCTS.

### CEMENT SALESMAN.

More than fourteen years' experience. Widely acquainted with the trade in New York, New Jersey and Pennsylvania, desires position with a solid concern who is looking for a live wire.
Address "LIVE WIRE," care ROCK PRODUCTS.

### SUPERINTENDENT.

Position Wanted—Superintendent of wall plaster plant. Ten years' experience. Present employed on road, but want located position; 36 years old; married. Will go anywhere. Address L. S. W., care ROCK PRODUCTS.

## MACHINERY WANTED

### MIXERS.

Wanted—Six second-hand Broughton mixers.
Address "MIXER," care ROCK PRODUCTS.

### PUG MILL

Wanted—12"ft. pug mill, double shaft preferred, two material Trump measuring machines, and customer for Schwartz mixer, batch 3,000 lbs.
Address 798, care ROCK PRODUCTS.

## MACHINERY FOR SALE

### GOOD AS NEW.

For Sale—One Sturtevant Mill Co.: 6"x16" Cam and Roll Jaw Crusher. No. 120—Very powerful machine, weighs 6½ tons; good as new; cost $1,000; asking $350.00. Address P. O. BOX 27, Albany, N. Y.

### FOR SALE—FOR SALE.

One 50-horse power gas engine, good.
Two blowers, one hair picker.
One plaster mixer, inquire.
Shafting, pulleys and belting. Address
NEW CASTLE ELASTIC PULP PLASTER CO.,
New Castle, Pennsylvania.

**PATENTS SECURED FOR INVENTIONS.**

C. L. Parker, ex-examiner U. S. patent office, 956 G St., Washington, D. C. Write for inventor's handbook.

**THEW SHOVEL.**

For Sale—No. 3, overhauled, first class shape. Also narrow and standard gauge locomotives. Address Southern Iron & Equipment Co., Atlanta, Ga.

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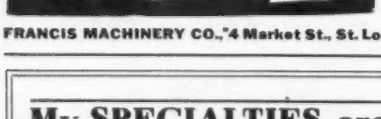


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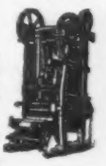

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Cummer, F. D., & Son Co.
Dunning, W. D.
Ersham, J. B., & Sons Mfg. Co.
Williams Pat. Crusher & Pulverizer Co.

### PLASTER.
Cardiff Gypsum Plaster Co.
Carolina Portland Cement Co.
Dakota Plaster Co.
King, J. B., & Co.
National Mortar & Supply Co.
Plymouth Gypsum Co., The.
U. S. Gypsum Co.
Wheeling Wall Plaster Co.

### PULVERIZERS.
American Pulverizer Co.
Kent Mill Co.
Pennsylvania Crusher Co.
Raymond Bros. Co., The.
Sturtevant Mill Co.
Traylor Engineering Co.
Ernst Wiener Co.
Williams Pat. Pulverizer Co.

### RAILROADS.
Monon Route.

### RAILROAD MATERIAL.
Atlas Car & Mfg. Co.
Kilbourne & Jacobs Mfg. Co.
Sackett Screen & Chute Co., H. B.
Ernst Wiener Co.

### ROOFING MATERIAL.
Carolina Portland Cement Co.
Barrett Mfg. Co.

### SAND.
Kirkpatrick Sand & Cement Co.
Ottawa Silica Co.
Union Sand & Material Co.

### SAND-LIME BRICK MCHY.
American Clay Working Mchy. Co.
American Sand Stone Brick Co.

### SCREENS.
Buffalo Wire Works.
Butterworth & Lowe.
Dull Co., Raymond W.
Ersham, J. B., & Sons Mfg. Co.
Johnson & Chapman Co.
Power & Mining Mchy. Co.
Sackett Screen & Chute Co., H. B.
Stephens-Adamson Mfg. Co.
Sturtevant Mill Co.
Traylor Engineering Co.

### SCREEN SECTIONS.
Johnson & Chapman Co.

### SEWER PIPES.
Buckeye Fire Clay Co.

### STEAM SHOVELS.
The Bucyrus Co.
The Marion Steam Shovel Co.
The Vulcan Steam Shovel Co.

### STUCCO RETARDER.
Chemical Stucco Retarder Co.
National Retarder Co.
Ohio & Binns Retarder Co.

### TUBE MILLS.
Power & Mining Machy. Co.
Smidth & Co., F. L.
Traylor Engineering Co.

### WATER PROOFING.
Barrett Mfg. Co.
De Smet, George W.
Carolina Portland Cement Co.
Ceresit Waterproofing Co.
Glidden Varnish Co.
Marsh Co.
Maumee Chemical Co.
McCormick Waterproof Portland Cement Co.
Wadsworth, Howland & Co., Inc.

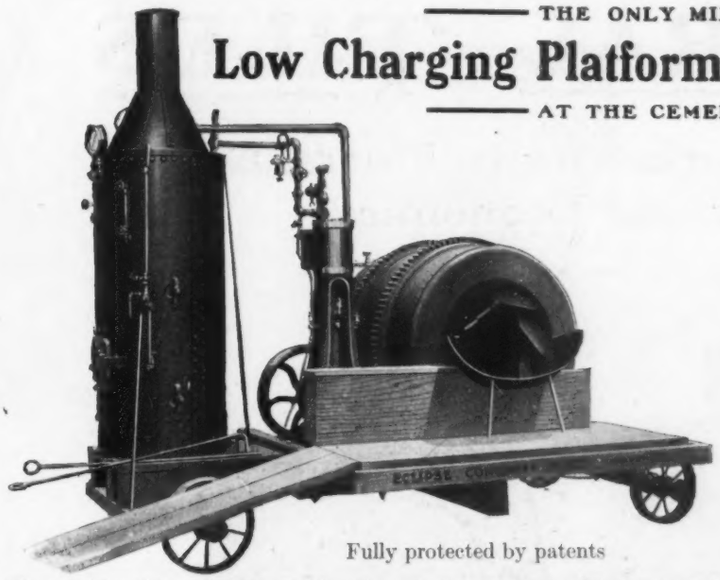
SCALES TRUCKS HOISTS ENGINES WHEELBARROWS

# ECLIPSE CONCRETE MIXER

THE ONLY MIXER WITH

## Low Charging Platform—Large Open Drum

AT THE CEMENT SHOWS



Fully protected by patents

**Contractors! Notice These Points**

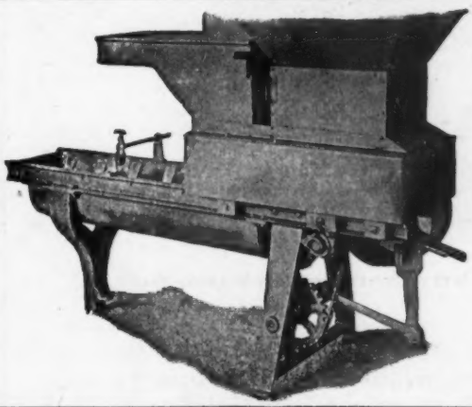
Adapted to Any Mix, Wet or Dry.
Rapid, Thorough and Uniform Mixing.
Semi-Automatic Discharge.
No Complicated Lifting Hoist.
No Platform to Tear Down and Rebuild.
Direct Charge.
Highest Grade Engines.
Most Substantial Truck.
Drum of Heavy Steel.
Stands Every Test.
Fully Guaranteed.
Saves 30% on Labor Over Any Other Mixer.

**Strong--Durable--Efficient**--Mixes Concrete, Cement, Mortar, Westrumite Asphalt, Etc. Used by the Largest Contractors, Railroads and the United States Government. Furnished with any kind of power. Be sure to write for catalog No. 33 and 1911 price list

OWNED AND MANUFACTURED EXCLUSIVELY BY

## THE STANDARD SCALE AND SUPPLY COMPANY

CHICAGO 1341 to 1347 Wabash Ave. | PITTSBURG 243-245 Water Street | PHILADELPHIA 35 South Fourth Street | NEW YORK 136 West Broadway



## "KENT" CONTINUOUS MIXER

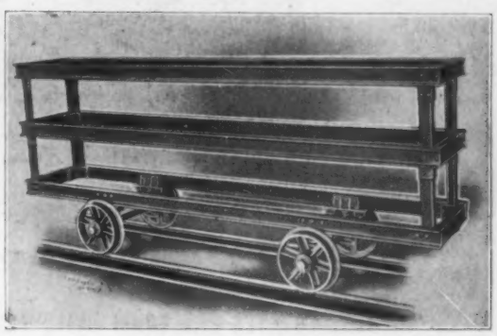
"The Mixer that measures and Mixes"

"You fill the Hopper, the Mixer does the rest"

Simple, reliable, economical, durable and moderate in price

Write for Catalogue and Prices to

**The Kent Machine Co.**
306 N. Water St., Kent, O.



The "KENT" Block Cars, Transfer Cars, etc.

# IMPORTANT

## Advertisers—Take Notice

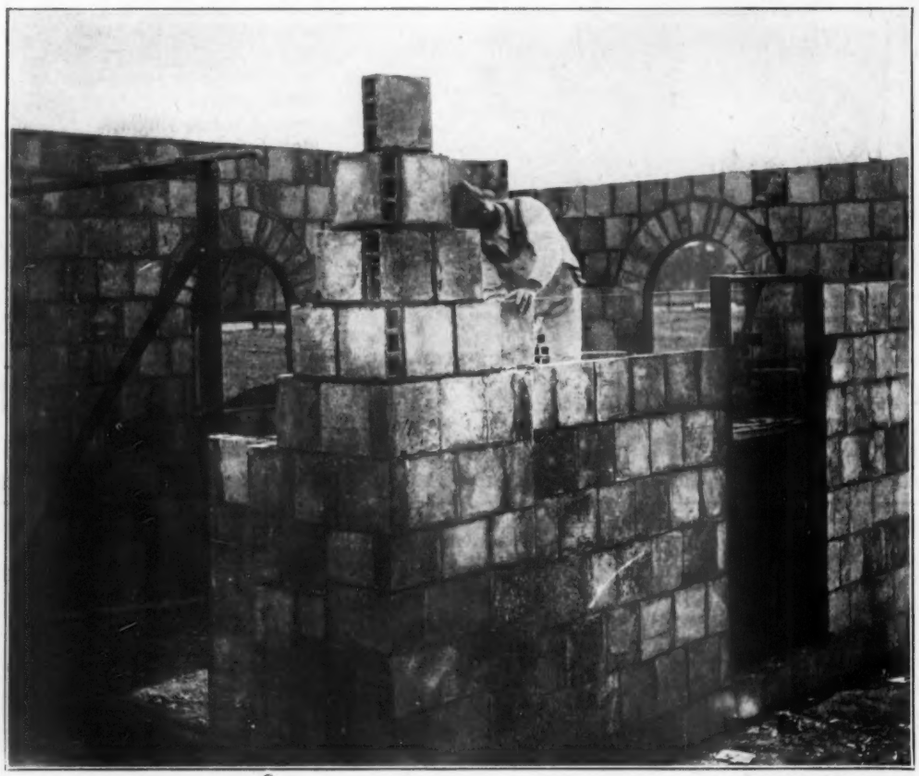
**Changes of Copy** must be in this office by the Fifteenth of the month if proofs are desired; if no proofs are required the desired changes can be made if copy is received by noon of the Nineteenth.

**New Advertisements** to insure proper classification, should be in this office by the Fifteenth of the month, but they can be inserted in the last form going to press if received by the Nineteenth. The punctual publication of the paper admits no deviation from these rules. Advertisers are earnestly requested to co-operate with us.

**THE FRANCIS PUBLISHING CO.,** 355 Dearborn Street CHICAGO, ILLINOIS

# STRUCTURAL TILES

## For Dwellings, Factories, Walls, Floors, Etc.
## Incombustible and Economical



**Used in the New Terminal of the New York Central Railroad in New York to Carry Expensive Art Plaster Work**

**COUNTRY ESTATES AND FARM BUILDINGS**—Economical improvements that show up for every dollar of the cost is obtainable only with this greatest concrete product.

**PLASTERED EXTERIORS**—A Perfect Plastering surface is provided in concrete tile walls for the spreading of plaster or stucco with absolute certainty of securing strong adhesion of the materials.

**FOR DWELLINGS**—These tiles combine the long needed essentials of perfect adaptability to every kind of decorative treatment, very high fire resisting value, and extreme low cost as well as economy at the job. With them a permanently sanitary home is built—this cannot be done with any other material.

**Contractors who use our tiles easily underbid competition.**

# Chicago Structural Tile Co.

## 353 Dearborn Street, Chicago, Illinois

*"THIS IS THE ROOFING THAT NEEDS NO PAINTING"*

AMATITE means more to the man who needs a roofing than just merely something to put on the top of a building.

It means a thoroughly satisfactory and reliable roof covering, without future *expense for painting*—because the *real mineral surface* makes painting unnecessary.

Frequently the cost of painting a roofing amounts to almost enough to buy a new Amatite Roof.

# Amatite ROOFING

Amatite can be laid right over shingles, tin or other ready roofings. The directions hold good for laying Amatite anywhere and over anything, and are as simple as A B C.

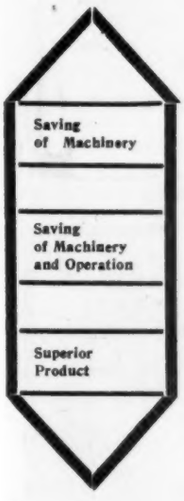
For further information, booklet, samples, etc., address nearest office.

BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston
St. Louis Cleveland Pittsburg Cincinnati
Kansas City Minneapolis New Orleans
Seattle London, England

TRADE B MARK

# In Producing Cement Clinker, what is YOUR Grinding Cost?




A statement is being advertised that "5 mills, grinding enough raw material to produce nearly 1,200 barrels of clinker per day is a record."

**NOW**

We will guarantee (and our guarantee is worth something) that
**3** Raymond Roller Mills will grind enough raw material to produce fully 1,200 barrels of clinker per day

**Moreover—**

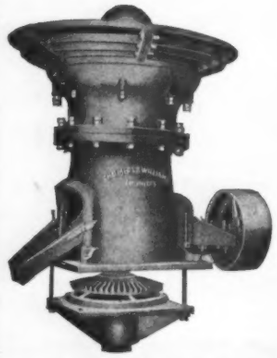
The Raymond Mills will take the material direct from crusher or rolls and thus save the expensive preliminary grinders necessary with other types of mills.

**Furthermore—**

We will also guarantee that the finished product from the Raymond Mills will be 98% 100 mesh ne and 92% 200 mesh fine.

If you are going to install grinding or separating machinery for handling cement or any other fimaterial you can not afford to act without having a talk with us.

**RAYMOND BROS. IMPACT PULVERIZER CO.**
**517 Laflin Street, Chicago**



# Reduce the Cost of Crushed Stone

by using a

# KENNEDY GYRATORY CRUSHER

We can show these crushers in operation for two years, which, during that time have not cost one cent for repairs.

This crusher is the only crusher made with a ball and socket self aligning eccentric which relieves undo strain and reduces the amount of power required to operate.

**Those who have investigated, have bought. Why don't you? Ask for catalog L4**

**CHALMERS & WILLIAMS - - Chicago Heights, Ill.**

# HOWELLS' Celebrated Ball Bearing Heavy Geared Post Drills

**For boring anything that an Auger will penetrate.**

*Awarded Gold Medal, St. Louis.*

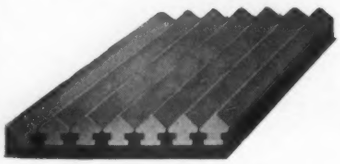
We make 40 different styles machines run by Hand, Compressed Air and Electricity for boring Fire Clay, Coal, Rock, Rock Salt, Gypsum and Plaster Rock. Send today for our handsomely Illustrated Catalogue.

**HOWELLS MINING DRILL CO., PLYMOUTH, PA. U. S. A.**

**(ESTABLISHED 1878.)**

# A Tempered Steel Jaw Plate for Blake Type Crushers

**CHROME STEEL WORKS**
CHROME. N.J..U.S.A.
(FORMERLY OF BROOKLYN, N.Y.)



Canda Tempered Steel Crusher Jaw Plate

Patented March 31, 1908

¶ The Canda Tempered Steel Jaw Plate for Blake Crushers is composed of Forged and Rolled Chrome Steel Bars, cast-welded and also mechanically interlocked into a backing of tough steel—and the wearing face is tempered to extreme hardness. We are equipped to supply both corrugated and smooth face plates for all sizes and makes of Blake Crushers.

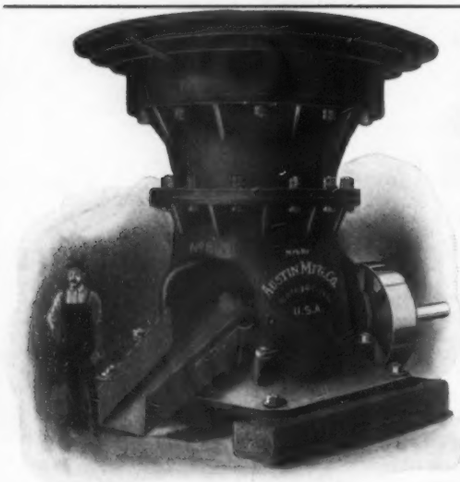
¶ The Canda method of cast-welding forged and tempered steel bars into a mild and tough Steel Backing, is adapted also to the construction of Cone Heads for Gyratory Crushers, Segments for Corrugated Rolls, etc., etc.

¶ Our products in this line are sold with our special guarantee that they *will wear longer, give better satisfaction and, at our price, prove more economical than any others now on the market.*

**— Send for Descriptive Pamphlet —**

Represented by

J. F. Spellman, 202 Century Building, Denver, Colo. George T. Bond, Easton, Pa. George W. Myers, San Francisco, Cal.



# AUSTIN GYRATORY CRUSHER

The World's leading rock and ore breaker.

The only self lubricating Crusher.

The only Crusher having double countershaft bearing.

Simple construction, correct design.

Thousands in use.

Plans and specifications furnished for any sized plant.

Send for Catalogue No. 17.

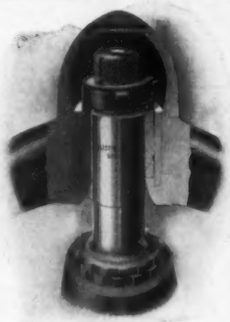
All experienced users recognize that the efficiency and durability of the suspension bearing as applied to Gyratory Crushers, depends upon locating the bearing at the point of least gyration or movement of the main shaft.

A perfect suspension can be made only by locating the bearing at the point where there is no movement of the shaft. That being a mechanical impossibility it follows that superiority is obtained in fixing the bearing at the point of least gyration of the shaft.

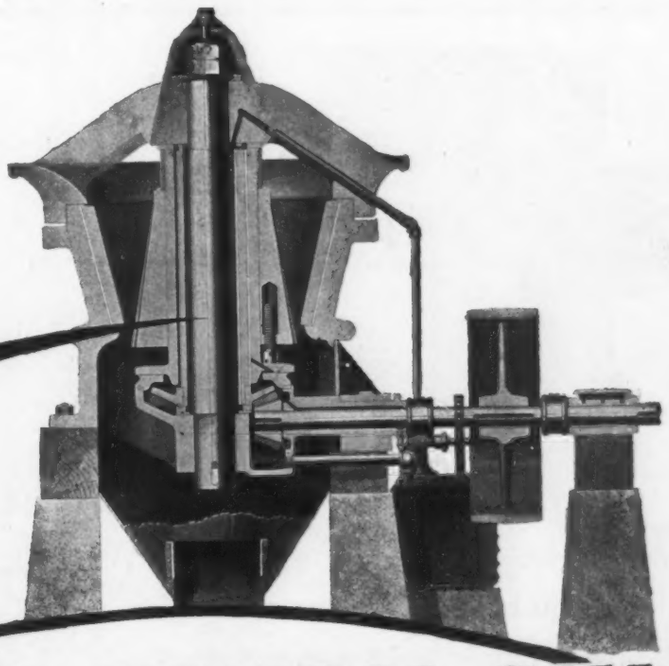
As the accompanying cut will show, the movement of the shaft at the point of suspension in the Austin Crusher is reduced to the minimum and practically eliminated. Consequently the highest possible degree of efficiency and durability is obtained.

**Austin Manufacturing Co., Chicago**

**Mussens Ltd., Montreal, Can., Canadian Sales Agents.**



New York City Office
1682 FULTON BUILDING
Hudson Terminal



# THIS RIGID CENTRAL SHAFT

is not merely suspended. It is not just supported. It is a big bolt—a short, thick steel forging of enormous strength, tying the stocky two-piece frame into a unit which not the hardest usage can break or budge. That big central bolt tells why the strongest crusher on the market is the

# Symons Crusher

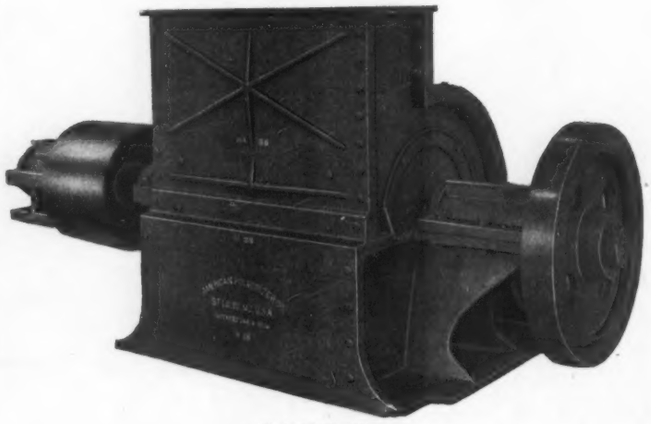
Look at that eccentric, encasing the shaft, and at the head-liner enclosing the eccentric. To break the shaft, you must also shear eccentric and head-liner. Note the great length and large diameter of the eccentric. Imagine the main bearings constantly drenched with oil—five gallons per minute if needed. Then calculate the area of the feed openings and don't forget, in figuring capacity, that the head moves as far at the top as at the bottom.

WRITE FOR CATALOG NO. 166

## The T. L. Smith Company

**1322 Majestic Building**

**Milwaukee, Wisconsin**



Made in Six Sizes.

30 days granted each purchaser for grinding test prior to acceptance

**All Machines Guaranteed**

**All Grinding Parts Made of Manganese Steel**

A purchaser of a small size

# American Ring Pulverizer

reports he has crushed and pulverized limestone direct from the quarry in size from 2-inch to 3-inch cubes to 50 per cent meal fine, balance under 7-32 inches, at rate of 60 to 70 tons daily for 140 days, at not one cent cost of repairs; and adds that his Pulverizer will be operated well into the coming season before it will need renewals.

**THE RING IS THE WHY**

If you want to pulverize limestone, raw or burned, or any other kind of stone, coarse or fine, and do it with least cost of operation

INSTALL AN

**American Ring Pulverizer**

WRITE FOR PARTICULARS

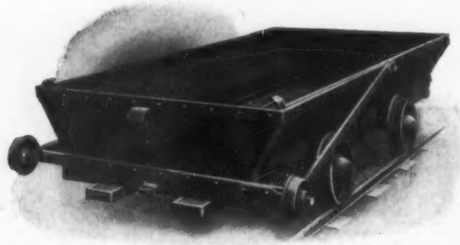
## American Pulverizer Company

**410 Jaccard Building, - - ST. LOUIS, MO.**

# Lakewood Line

**Concrete Mixers, Buckets, Cars, Portable Track Switches, Concrete Carts, Scaffold Winches, Skips, Sleds, Etc., Etc.**

BUILT TO LAST



Quarry Car with Lifting End Gate No. 254

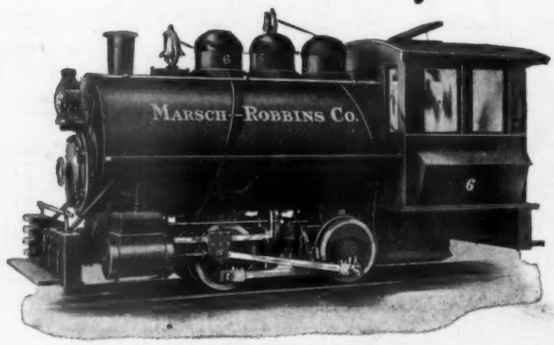
Send for Catalogue "P"

**The Ohio Ceramic Engineering Co.**
**Cleveland, Ohio**

Branch Office, 1015 First National Bank Bldg., Chicago

## Do You Have Cars to Haul?

# The Davenport Locomotive Will Save Money




**Special Designs for Special Purposes**
**Any Size, Any Gauge, Any Weight**
**Write for Prices and Particulars**

## DAVENPORT LOCOMOTIVE WORKS

**DAVENPORT, IOWA**

BRANCH OFFICES:

Chicago, 12 and 14 So. Canal St. — New York, 30 Church St.
Seattle, 617 Western Ave. — Minneapolis, 107 3d Ave. No.

F. H. Hopkins & Co., Montreal, Que., Canadian Representatives

# Make Night Work as Efficient as Day Work

AT A PRICE SO SMALL IT WILL SURPRISE YOU

**Powerful, automatic, portable, cheap and reliable, it's accomplished with the**

## Willson Flare Light

Especially adapted for outdoor construction work, unequaled in efficiency and economy for CONTRACTORS and RAILROAD WORK.

Burns Acetylene gas—the most powerful known illuminant—15 times more powerful than coal gas and in penetrating and diffusive qualities exceeding any other light.

**8,000 C. P. for 13 Hours**
**At 5c per hour**

that's the light of a Willson Flare.

Does not smoke, sputter or flicker—it's steady, powerful and brilliant.

We want to tell you about it.

*CATALOG FREE.*

**United States Marine Signal Co.**
**172 Broadway** **New York, N. Y.**

Tisco

# DO IT NOW!

The time to look over your equipment is now—to-day! Better see that everything is in shape for the spring rush. "Shut-Downs" later will be expensive.

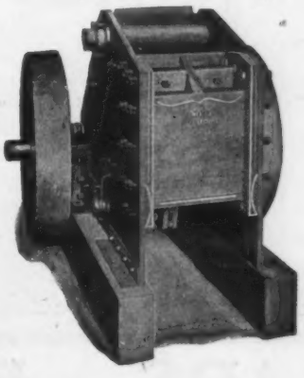
# TISCO
## Manganese Steel

Crusher parts insure freedom from breakage and the greatest resistance to wear. Don't wonder whether it's so or not, a trial convinces.

**Taylor Iron & Steel Co.**
**High Bridge, New Jersey**

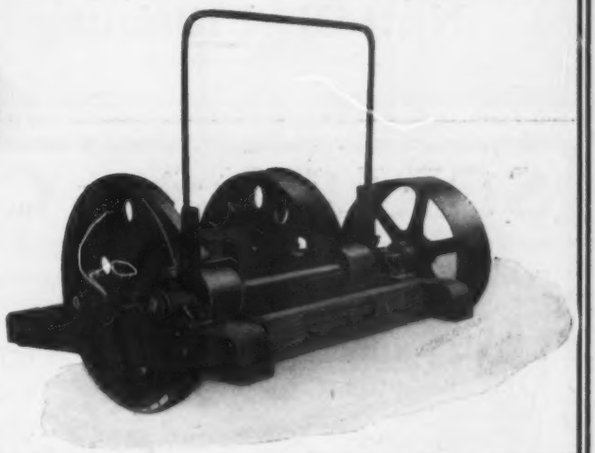
# Increase the Output and Efficiency of Your Quarry

By using CHAMPION Rock Crushers, Elevators, Screens, Dump Cars, Hoisting Drums, Wire Cable, Conveyors, Bin Chutes, Engines and Boilers. Everything for the quarryman furnished at right prices. Our Dump Cars are Durable and Economical. Made in two sizes.

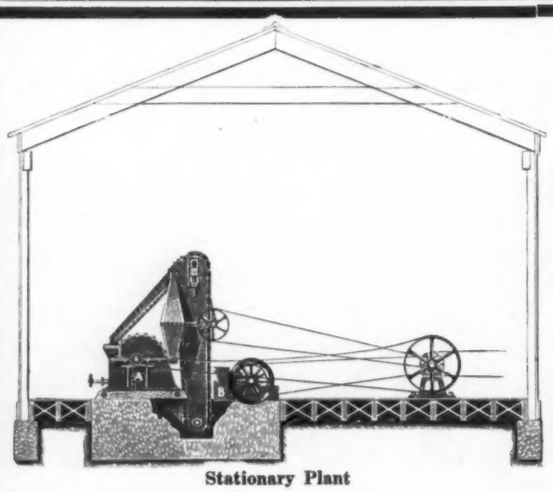


Champion Steel Rock Crushers are made in six sizes, from 75 to 600 tons daily capacity. We design and equip quarry plants of any capacity. Our Crushers do more work at less cost for repairs than any others. Catalog will interest you.

Count on quality when you consider Champion Quarry Machinery. We aim to furnish nothing but the best. Our winding drum is a low-priced, durable and economical appliance for drawing material from the quarry to the Crusher. Powerful and always to be depended upon.



**The Good Roads Machinery Company, Kennett Square, Pa.**



Stationary Plant

# WAKE UP!

## TURN YOUR LOSS INTO PROFIT

Grind Your Limestone Screenings and make
**LIMESTONE FERTILIZER.**

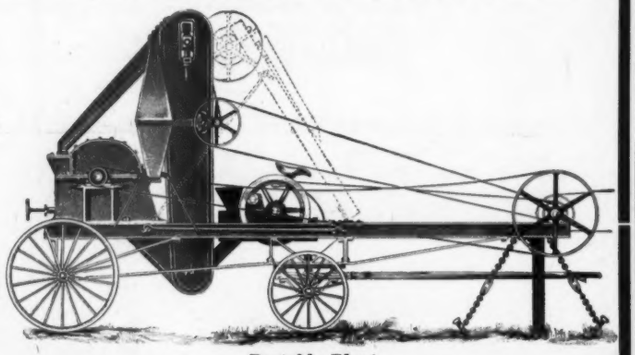
We Furnish Complete Plants of ANY CAPACITY DESIRED

We now have over 30 plants in operation

BULLETIN NO. 4 EXPLAINS THE PROPOSITION

**The Williams Pat. Crusher & Pulv. Co.**

ST. LOUIS: 2705 N. Broadway
CHICAGO: Old Colony Bldg.
SAN FRANCISCO: 428 Monadnock Bldg.



Portable Plant

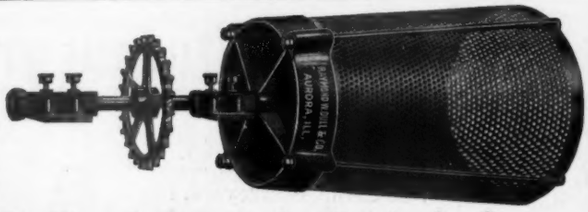
**Talk is cheap, but if it's gears you want**

Why talk any more about them—We make the gears you should have.

*Write us.*

**Nuttall—Pittsburg**

*When in a hurry, wire us.*



**Dull's Improved Conical Screen**

WE DESIGN AND CONSTRUCT COMPLETE
SAND AND GRAVEL WASHING PLANTS
We invite correspondence—Send us full particulars

RAYMOND W. DULL & COMPANY
AURORA, ILL.

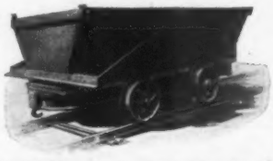
# SCREENS --- CARS --- ELEVATORS

Send for Our Catalog No. 31-R

If you want anything for your quarry or gravel pit let us give you our figures. We will quote you right prices, prompt deliveries, and if you favor us with your order furnish goods that will more than please you

Give us a chance
Others have and are glad they did

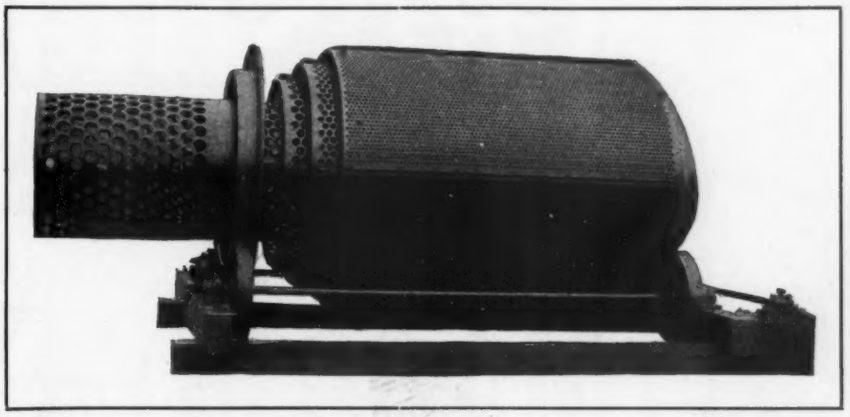
Portable Track Turn Tables



Elevator Buckets

**SACKETT---CHICAGO** 1679 ELSTON AVE.

# JOHN O'LAUGHLIN'S SCREEN



made solely by **Johnston & Chapman,** is the

## ONLY SCREEN

on the market for wide-awake quarry-men and miners, who want to separate crushed granite, limestone or other minerals, gravel, sand, coal or coke. It will soon earn its cost in saving of repairs, and maintenance, and reduced power, and will do more and cleaner work than any other cylindrical screen of like area. No one can afford to keep old traps in use when the **O'Laughlin** installed

## NOW

will from the moment it starts give a better and larger product, and a big interest on your investment in continuous saving in cost of repairs, renewals, and power. For particulars, address:

The advantages of these screens are described in detail in a circular which WE WILL MAIL TO ANY ADDRESS. Mr. John O'Laughlin, the inventor, has designed many notable improvements in rock-drilling, quarrying, crushing and screening machinery, and uses these improved screens in his own crushing plants, which others have declared "to be the most perfect in existence in every detail." The O'Laughlin Screen is an important factor in the most modern and perfect stone-crushing plant.

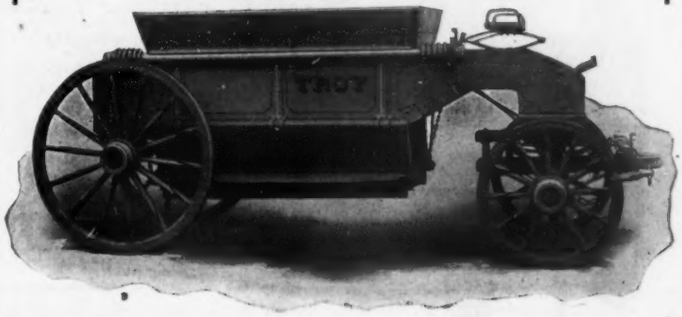
## JOHNSTON & CHAPMAN CO.

**Corner Francisco and Carroll Ave., Chicago, Ill.**

**Perforators of Sheet Metals, Flat, Cylindrical, and Conical Perforated Screen Plates for Quarries, Mines, Reduction Works, Mills and all Industrial Purposes.**

# Troy Wagon Diary

MARCH 22, 1911




I find myself in the great storage rooms of The Troy Wagon Works Co., Troy, Ohio, with some hundreds of my kin who have been born during the winter and are looking forward to a long life and a prosperous one. Whether prosperity will come to me individually or not, I do not venture to guess; but I am well assured by the records of my Troy ancestors that prosperity will go with me to my future owner, whoever he may be. Yes, we wagons carry luck—good or ill—according to our hereditary traits, and I am particularly grateful that I come of a luck-carrying, long-lived stock of dump wagons. I have just been reading how I am made. An interesting little book it is that describes my anatomy. I find I am quite different in most ways from other dump wagons. I understand you can get the book telling about me by writing for Catalog No. 2-P to

## The Troy Wagon Works Co.

**101 East Race Street, Troy, Ohio**

Quick Delivery for All Territories from Warehouse Stocks in Principal Trade Centers of United States and Canada.

# Newaygo Screen

**Price $285.00**

## Screens Everything Screenable

FROM 4 TO 200 MESH.

Cannot shake itself to pieces — One to four products from a single separator.

HUNDREDS IN USE.

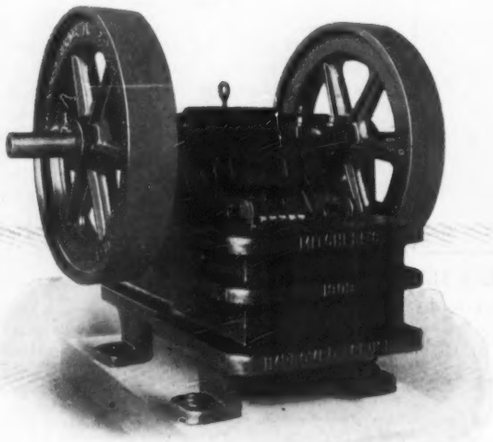
78 by one Company—60 by another—17 by another—17, 15, 11, 9, 8 by others. These orders and re-orders show what users think of Newaygo Screens.

*Send for "Sale or Return Offer" and Catalog*

## STURTEVANT MILL CO., BOSTON, MASS.

## OUR EXHIBIT AT THE CHICAGO CEMENT SHOW

Will include the very crusher we illustrate here.



It is a **No. 3** of our 15 different sized

**MITCHELL IMPROVED CRUSHERS**

It weighs only 6,000 pounds, requires from 8 to 10 horse power, and with a jaw opening 8 in. x 14 in., will produce from 60 to 70 tons of the most uniform 2½ in. rock you ever saw.

But best of all, you can adjust this machine by simply turning a hand wheel to crush down to ¼ in. in one operation. Several users have written us that they are getting 5 and 6 tons an hour of 1 in. rock, and you can even get 25 or 30 tons of material uniformly as fine as ¼ in.

Our catalogue No. 6 explains all the sizes. It's worth having.

You'll find us at Booth 178.

**Eureka Stone & Ore Crusher Co.**

Cedar Rapids, Iowa

## FARREL ORE AND ROCK CRUSHER

USED IN ALL PARTS OF THE WORLD—LARGE RECEIVING CAPACITY—SPECIALLY DESIGNED AND CONSTRUCTED FOR HARDEST KIND OF WORK

COMPLETE CRUSHING PLANTS OUR SPECIALTY

• SEND FOR CATALOGUE •

EARLE C. BACON, ENGINEER.

FARREL FOUNDRY & MACHINE Co. HAVEMEYER BUILDING, NEW YORK

## MACHINERY

—FOR—

## Industrial Plants

We manufacture machinery for transmitting power, and for elevating and conveying materials in and about cement plants, rock crushing plants, lime plants, mortar works, plaster works, and other industries.

We manufacture screw conveyors, belt conveyors, and all sorts of chain and cable conveyors, for handling rock, lime, sand, etc.

We manufacture elevators, also, for handling the same kinds of material. Our lines include shafting, couplings, bearings, collars, pulleys, gears, rope sheaves, sprocket wheels, elevator buckets and bolts, steel elevator casings, etc.

We have our own foundry, sheet metal department and machine shop. We employ first-class help in all departments and use high-grade materials.

When you are in need of anything in our line, try us.

Catalog No. 34

**H. W. Caldwell & Son Co.**

17th St. and Western Ave., Chicago

Fulton Bldg., Hudson Terminal, No. 50 Church St. NEW YORK CITY

## "R. F. & C." Solid Woven Rubber Belt

Eliminates every rubber belt defect. Send for pamphlet "A Wireless On Rubber Belting."

**W. H. SALISBURY & CO., Dept. R**

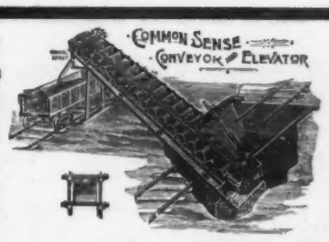
CHICAGO Established 1855 ILLINOIS

# WEBSTER ELEVATING & CONVEYING MACHINERY

## FOR SAND, GRAVEL AND CRUSHED STONE PLANTS

**Belt Conveyors**
**Continuous Bucket Elevators**
**Revolving Screens for Sand and Gravel**
**Open Top Carriers**

**THE WEBSTER M'F'G COMPANY**
**ENGINEERS, FOUNDERS AND MACHINISTS**
Eastern Branch
88-90 Reade St., New York
2410-2432 West 15th St.,
CHICAGO




Send for Catalog 25

THE GENERAL CRUSHED STONE CO.,
So. Bethlehem, Pennsylvania,
have been using one of our Common Sense Elevators for six years—capacity 400 tons an hour.

**THE C. O. BARTLETT & SNOW CO.** CLEVELAND OHIO

# GANDY as a MAIN DRIVE

We hear from one customer that he has three Gandy belts in operation—a 30 inch and a 27 inch have been running for 14 years. Another 30 inch has been running for 20 years, all giving perfect satisfaction.

Here's another who has used a Gandy 20 inch 8 ply belt as a main drive continuously for 18 years. He says this belt was frequently run 24 hours a day, has given the best of service, and is still in excellent condition.

There is no better proof of what "The Gandy Belt" will do for you than to tell you the actual experiences of Gandy users, and we've gotten a whole lot of these together in a free booklet, "Experiences with The Gandy Belt", which we want to mail to you if you'll send us your name and address.

The Gandy Belt will save you money. It is the most serviceable belt for Driving, Elevating and Conveying purposes, while it costs only ⅔ as much as Leather Belting and 25% less than Rubber Belting.

There is only one Gandy Belt, and it is made by The Gandy Belting Company of Baltimore, Md. Look for the brand "The Gandy Belt" and for our trade-mark, a roll of Belt and a bale of Cotton. ∴ Shall we send you our free booklet?

**The Gandy Belting Company**
**744 West Pratt Street, Baltimore, Md.**
**New York Office: 88-90 Reade St.**

# LEVIATHAN BELTING

is to be found in use in practically every important stone crushing and sand and gravel plant of the United States, and on sale by

## MAIN BELTING CO.

**PHILADELPHIA CHICAGO NEW YORK BOSTON**
**PITTSBURG MONTREAL SEATTLE**

"You can do without LEVIATHAN, but you cannot do so well."

THE AMERICAN ASPHALT PAVING COMPANY
CHICAGO

December 9, 1910.

The American Fabric Belting Co
92 Michigan Avenue,
Chicago Illinois

Gentlemen:

Replying to your inquiry as to our experience with "Nestor" Belts, beg to say that the 16" Nestor running on our asphalt mixer is giving us remarkable service

This belt drives this machine without any slippage or loss of power, and does much better work than the leather belts which we used before

We are also using "Nestor" for transmission purposes in other parts of our plant with excellent results.

Yours truly,
THE AMERICAN ASPHALT PAVING COMPANY
E. G. Schwandner
Superintendent

# "NESTOR"

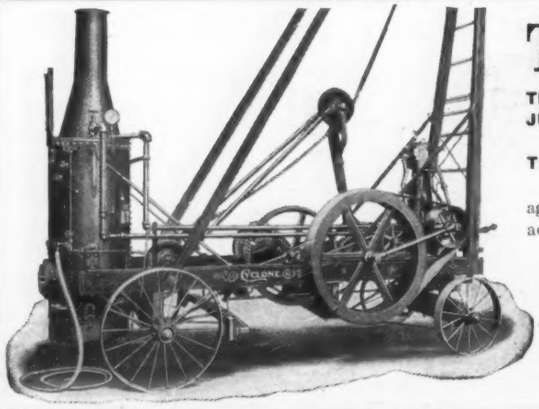
## SOLID WOVEN WATER-PROOF BELT

Runs as true as an arrow. Clings to the pulley. Does not slip. Remains pliable. Does not shrink. Has but little stretch. Is unaffected by surroundings. The RESULT is MAXIMUM EFFICIENCY, which, combined with REASONABLE FIRST COST means ECONOMY. Write for "NESTOR FACTS."

AGENTS IN ALL PRINCIPAL CITIES

The American Fabric Belting Company
Cleveland, Ohio

Tell 'em you saw it in ROCK PRODUCTS



# The Cyclone Wins Again

**THE CONSTANT WINNING OF CONTESTS BY THE CYCLONE DRILLS DOESN'T JUST HAPPEN**—there is a reason for it.

The **CONSTRUCTION, MATERIAL** and **PRINCIPLE** which enter into these drills are **THE REASONS.**

The test completed in the quarry of the U. S. Crushed Stone Company, at McCook, Illinois again demonstrates the superiority of the Cyclone drill from point of speed and maintenance; it adds another link in the chain of evidence that Cyclone drills are built right and run right.

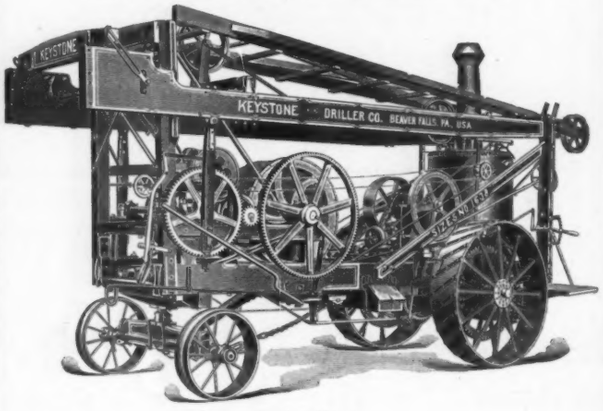
This is the reason why the U. S. and Canadian Governments, as well as the largest quarry people and railroad contractors, buy Cyclones.

WRITE US TO-DAY—DEPT. "20"

**THE CYCLONE DRILL COMPANY, ORRVILLE, OHIO**

CHICAGO OFFICE—419 Fisher Bldg. NEW YORK OFFICE—1456 Hudson Terminal Bldg.

# For Big Blast Holes
# KEYSTONE
# CABLE DRILLS




Catalog No. 4

**Keystone Traction Drill Co.**

Monadnock Bldg., CHICAGO | BEAVER FALLS, PA., 170 Broadway, New York | CARTHAGE, MISSOURI

95-C IN SANDUSKY PORTLAND CEMENT COMPANY'S QUARRY

**Bucyrus Shovels Are Loading Crushed Stone and Digging Blasted or Unblasted Cement Rock in the Leading Quarries in the United States.**

# THE BUCYRUS CO.

Branch Offices:
NEW YORK
SAN FRANCISCO
CHICAGO
DENVER
SPOKANE

P. O. Box T
**South Milwaukee, Wis.**

# Deep Blast Hole Drilling

Is accomplished more economically than by any other method with the

## "American" Drilling Machines

There is 40 years' experience behind these drills—they are standard.

Where electric power is available, equipped with motor they form the most portable and economical drill for quarry use.

Equipped with any power they are backed by the experience and reputation of the world's oldest and largest builders of this kind of drilling machinery.

Tell us your blast hole requirements. We have 59 regular styles and sizes of machines for your selection, made in types to meet every possible condition of work.

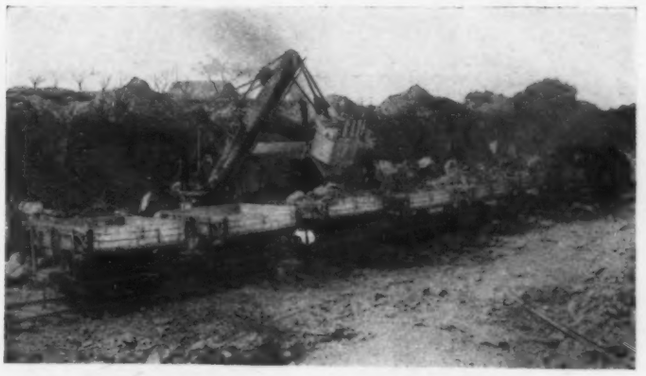
Write for our new catalog No. 105, the most complete "Drill-Hole" catalog ever issued.

# THE AMERICAN WELL WORKS

General Office and Works: AURORA, ILL., U. S. A. Chicago Office: First National Bank Building

# Marion Steam Shovels for Rock Excavation

These shovels have been thoroughly tested and proven in all kinds of cement and rock work. They handle this work most efficiently and economically. Write us and find out for yourself just how they do this.



Model 60 Operating in Plant of Southwestern States Portland Cement Co., Eagleford, Texas

For the heaviest work, our large shovels best meet requirements. For moderate outputs, our smaller shovels are best adapted.
Our Revolving Shovels are most popular where the output is limited, and economy is a vital consideration.

**Ours is the largest plant in the world manufacturing Excavating Machinery exclusively.**

Let us figure with you before you order that new steam shovel!

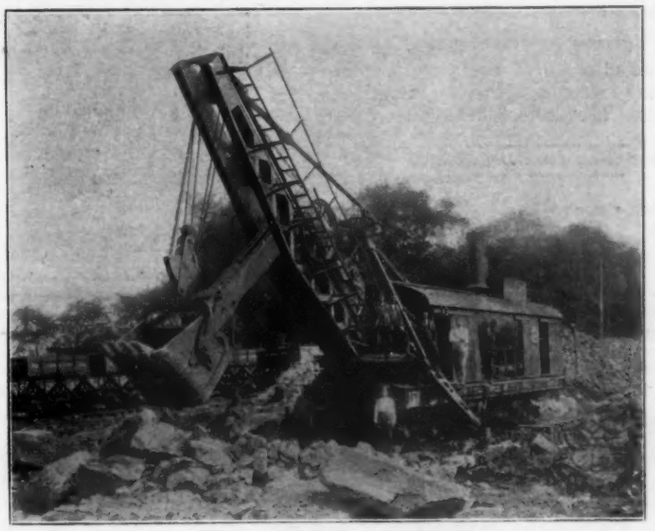
STEAM SHOVELS ELECTRIC SHOVELS REVOLVING SHOVELS DIPPER DREDGES SCRAPER BUCKET EXCAVATORS

*Ask for a Copy of Bulletin No. 60*

## The Marion Steam Shovel Company, Marion, Ohio

Chicago: 1442-3 Monadnock Block. New York: 50 Church St. Montreal: F. H. Hopkins & Co.

# VULCAN HEAVY-DUTY SHOVELS



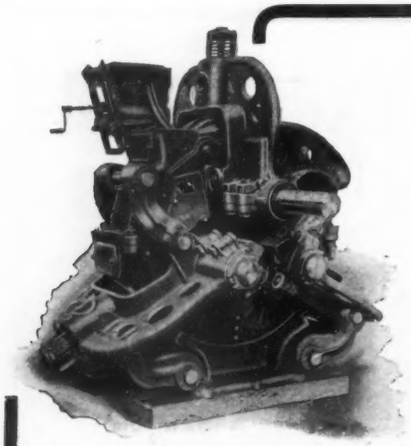
CLASS D 85-TON SHOVEL LOADING BLASTED ROCK FOR LAURIN & LEITCH, MONTREAL, QUEBEC.

Are especially designed for heavy excavating.
They will handle blasted and unblasted rock and stand up to the work.
Most simple, durable, economical and fewer repairs.
Six sizes: 45 to 120 tons, 1½ to 5 cubic yard dippers.
Also the well-known Little Giant Shovel: 32 tons, 1¼ cubic yard dipper.
Revolving Shovels—three sizes: 15 to 40 tons, ½ to 1½ cubic yard dippers.
All shovels equipped for either steam or electric power.

FULL INFORMATION ON REQUEST

## THE VULCAN STEAM SHOVEL CO. Toledo, Ohio

50 Church Street, New York



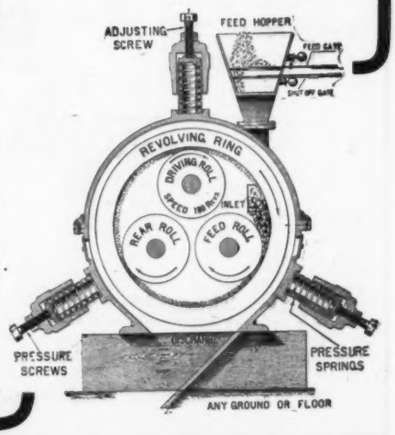
# MAXECON

## Means MAXimum of ECONomy

Years of experience with the assistance of our hundreds of customers has found THE SOLUTION OF GRINDING HARD MATERIALS. The MAXECON PULVERIZER combines highest EFFICIENCY, greatest DURABILITY and assured RELIABILITY. Uses the LEAST HORSE POWER per capacity. Embodies the features of our Kent Mill with improvements that make it MAXECON.

**WE DO NOT CLAIM ALL of the CREDIT for this achievement**

We have enjoyed the valuable suggestions of the engineers of the Universal Portland Cement Co. (U. S. Steel Corp.), Sandusky P. C. Co., Chicago Portland C. Co., Marquette Cement Mfg. Co., Western P. C. Co., Cowham Engineering Co., Ironton P. C. Co., Alpena P. C. Co., Castalia P. C. Co., Pennsylvania P. C. Co., and many other patrons.

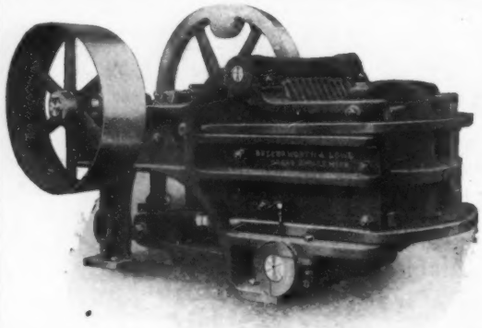



## THE RING WOBBLES

The FREE WOBBLING POUNDING RING instantly and automatically ADAPTS its position to the variations of work.

Its GRINDING ACTION is DIFFERENT than any other; besides the STRAIGHT rolling action of the rolls, the SIDE to SIDE motion of the ring makes the material subject to TWO crushing forces and DOUBLE OUTPUT results.

**KENT MILL CO.** 170 BROADWAY, NEW YORK CITY
LONDON, W. C., 31 HIGH HOLBORN
CHARLOTTENBURG 5, WINDSCHEID STRASSE 31, BERLIN



Nippers—made in 3 sizes.

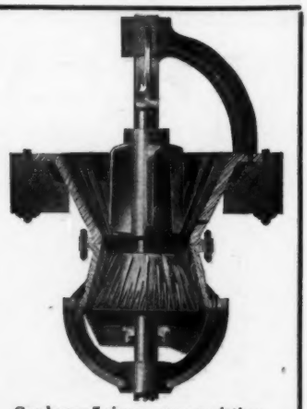
## Jaw and Rotary CRUSHERS

**For all Rocks and Ores Softer than Granite**

GYPSUM MACHINERY — We design modern Plaster Mills and make all necessary Machinery, including Kettles, Nippers, Crackers, Buhrs, Screens, Elevators, Shafting, etc.

**Special Crusher-Grinders for Lime**

**Butterworth & Lowe**
17 Huron Street, Grand Rapids, Mich.



Crackers—5 sizes—many variations.

GET THE BEST

# Finest Line of Gypsum Machinery

MADE

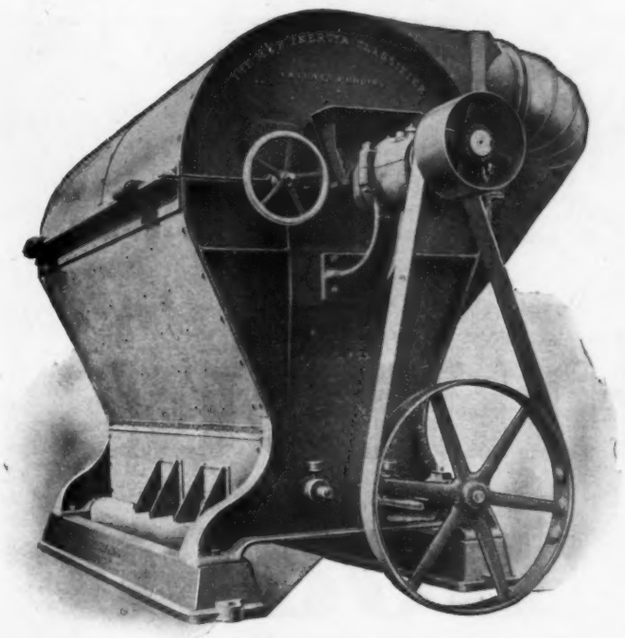
## KETTLE CRUSHER NIPPERS

ASK FOR CATALOG OF

## MOGUL NIPPERS. OPEN DOOR POT CRUSHERS

Best Mills in the United States Have Them

**McDONNELL BOILER & IRON WORKS, Des Moines, Iowa, U. S. A.**
"Formerly Des Moines Mfg. & Supply Co."



*PATENTS PENDING*

## FEW FACTS

ABOUT

# The Morscher-Ehrsam Inertia Classifier

Adjustable for making separations rom 80 mesh to 200 mesh.
Intake capacity from 5 to 10 tons per hour
Separations as positive as can be made on screens, with no perceptible variations in product owing to the variations of the speed or load.
Requires no more space than a Reel or Screen and the capacity is 20 times as great.
Material can be spouted direct from elevator head into machine.
No dust collectors or air spouts required.
We recommend its use in connection with gradual reduction on all classes of material where fine product is required. *Write for more information.*

Manufacturers of Jaw and Rotary Crushers for Gypsum, Vibrating Screens, Hair Pickers, Wood Fibre Machines, Calcining Kettles, Plaster Mixers, Power Transmission

# The Enterprise Vertical Burr Mill

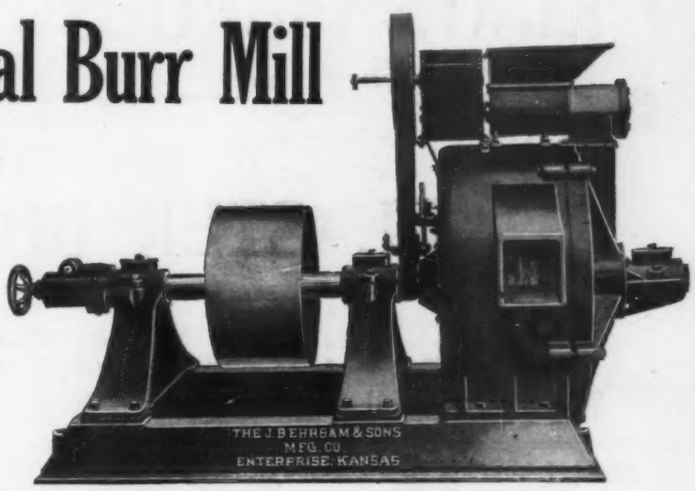
is especially designed for grinding gypsum, limestone, coal, coke, paint, rock, foundry facing, carbon, salt, and other similar substances.

It is STRONG and DURABLY built.

Has INTERCHANGEABLE STONES, which can be easily removed for dressing and replaced.

Is provided with our POSITIVE CONTROLLABLE FEEDER, which feeds an absolutely uniform stream into the mill at the required capacity.

MANY OTHER ADVANTAGES.




# The J. B. Ehrsam & Sons Mfg. Co.

Designers and Builders of

Complete Equipment for Plaster Mills

ENTERPRISE, KANSAS, U. S. A.

Improved
Modern
Lath

TRADE MARK
J.B.KING & CO.
FIBROUS PLASTER BOARD
DIAMOND BRAND
NEW YORK
REGISTERED IN U. S. AMERICA

Fire-Proof
Insulating
Sound-Deadening

# King's Fibrous Plaster Board

**Standard Size 32" x 36"**

## THE RESULT OF "TRADE DEMANDS"

**STRENGTHENED to stand the GREATEST STRAIN to which such material is subjected**
**TOUGHENED to a woody consistency to stand NAILING AND HANDLING**

SHIPMENTS made to dealers of STRAIGHT OR MIXED CAR LOADS

## KING'S FIBROUS PLASTER BOARD

CALCINED PLASTER
MOULDING PLASTER
FINISHING PLASTER
WOOD FIBRE PLASTER
NEAT WALL PLASTER
SANDED PLASTER
MARBLE DUST

## PLASTER BOARD NAILS

**SERVICE** The location of our works at the greatest railroad terminus in the East and our several warehouses enable us to make **Prompt Shipments at all times.**

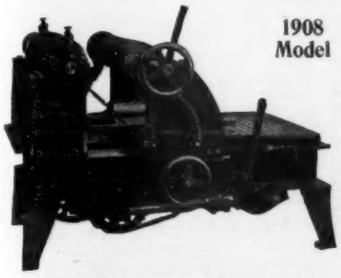
# J. B. KING & CO.

**Plaster Board Department:**
17 State Street, New York, N. Y.
161 Devonshire St., Boston, Mass.

**WAREHOUSES:**
Boston, Mass. Providence, R. I.
Chester, Pa. Hartford, Conn.
Norfolk, Va. Buffalo, N. Y.
Brunswick, Ga.

**WORKS:**
New Brighton, Staten Island,
NEW YORK

## The Shuart-Fuller Improved Fiber Machine



1908 Model

Has an automatic, proportional, increasing feed, which keeps grade of fiber uniform from start to finish, and holds machine to highest possible rate of production for the grade of fiber and number of saws. Does not begin with fiber and end with dust, nor fall off in rate of production on each log, from 40 to 80 per cent as do the ordinary non-increasing feed machines. Works logs up to 24x24 inches. No royalty string attached to sale. Pay no attention to misrepresentations of our competitors, but write for descriptive circular and terms to

**The Shuart-Fuller Mfg. Co.**
**ELYRIA, OHIO**

THE SHUART-FULLER CO., Elyria, Ohio. St. Louis, June 17, 1907.

Gentlemen:—We are just in receipt of advice from our New Mexico plant wherein they state that the Wood Fiber Machine recently shipped by you is doing all that we have asked of it and running very fine.

ACME CEMENT PLASTER CO.,
By Jas. R. Dougan, Sec.

## CUMMER CONTINUOUS PROCESS
FOR
## CALCINING GYPSUM

NO KETTLES USED — PLANTS IN OPERATION

Great Saving in Cost of Manufacture and Quality of Product Guaranteed.

The F. D. CUMMER & SON CO., Cleveland, O.

## PLASTER QUALITY

The highest perfection in the production of plaster has been reached by the

**DAKOTA PLASTER CO.**

Why? Listen:

The Dakota Plaster Company's deposits are 98 per cent Pure Gypsum. Its plant, built in 1910, was erected without regard to cost, and is one of the best equipped and latest improved plaster mills in the world.

THE DAKOTA PLASTER COMPANY
Black Hawk and Rapid City, S. D.

## PLYMOUTH CEMENT
AND
## WOOD FIBER PLASTER

The Brand that's Made from Pure Gypsum Rock

WRITE US FOR PRICES AND ADVERTISING MATTER

**Plymouth Gypsum Co.**
Fort Dodge, Iowa

# THE NATIONAL RETARDER CO.

Mills at
**Webster City, Iowa**
**Port Clinton, Ohio**

Successors to

**The Chemical Stucco Retarder Co.**
Webster City, Iowa

**The Ohio Retarder Co**
Port Clinton, Ohio

**The Binns Stucco Retarder Co.**
Uhrichsville, Ohio

The same standard quality of retarder will be produced and marketed by the same people at the right price—only a change in name of corporation.

## MAIL ORDER TO NEAREST MILL FOR PROMPT SERVICE

**In this day of progress, in the race for Business and Profits, it's foolish to handicap your prospects—HANDLE THE BEST.**

**This, then, extends to you the use of a progressive organization, and the facilities of 37 Producing Mills, concentrating every effort on the production of the highest quality of Gypsum Products on the American Market.**

The fact that the energies of so large an organization are devoted entirely to the production of Gypsum Products—energies backed with ample ability and the earnest desire to make this line the **very best of its kind**—is, in itself, assurance of quality and excellence.

Our mills are advantageously located throughout the country, enabling us to reach all markets with an attractive and economical distribution of our products, and with sales offices from New York to 'Frisco places us in position to give **you** both perfection in products and perfection in intelligent co-operation and service.

The laws of success are as certain as the law of gravity—U. S. G. Products and U. S. G. Co-operation are trade winners in any market. If you keep your latch string always out for **Greater Progress** we are willing to put our time against yours in proving clearly to your mind that you can effectively use our service and our products.

**Gypsinite, a Plaster Fireproof Stud**
**Sackett Plaster Board**
**U. S. G. Hard Wall Plasters**
**" " " Finishes**
**Adamant Plasters, including Adamant 2-C—the Perfection of Exterior Plaster.**

**We stand ready to prove up. Let's get together—our interests are mutual.**


NEW YORK—CHICAGO—CLEVELAND
This Country is being plastered with the products of
UNITED STATES GYPSUM Co.
MINNEAPOLIS, KANSAS CITY, SAN FRANCISCO

# "NIAGARA"

## IS THE BRAND

We cannot dwell too strongly upon the increased bulk and consequent greater covering capacities of our "NIAGARA" line of wall plasters, their favorable working qualities under the mechanics' tools and final strength.

**Niagara Neat Cement**
**Niagara Sanded Mortar**
**Niagara Wood Fibre** (Wood Pulp)

Dealers realize the additional dollars in the handling of our products because of their preference by the trade and good sense is displayed in pushing their sale. MIXED CAR LOAD SHIPMENTS of wall plasters, hydrated finishing lime, plaster board, land plaster, and calcined plaster for finishing purposes.

ALL BUSINESS DIRECT WITH SALES OFFICE.

## NIAGARA GYPSUM CO.
**BUFFALO, N.Y.**

# ATTENTION! ARCHITECTS & DEALERS

"IT SPREADS LIKE BUTTER"

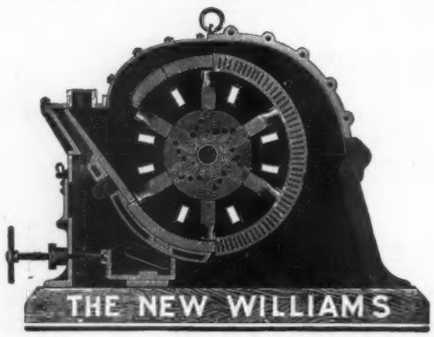
# Which? = "Wheeling"

# Why? = { Better Walls / Best Service / Right Prices

We want to make this, our tenth year in business, the biggest and best of all, both for our customers and ourselves mutually. Write us, Results will follow. Our booklet "Better Walls" for the asking.
WILL YOU JOIN THE "WHEELING" FAMILY?

## Wheeling Wall Plaster Co., Wheeling, W. Va.

# Williams Raw Material Grinders

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Also used extensively for fine grinding on Gypsum, Lime, Coal and Shale.

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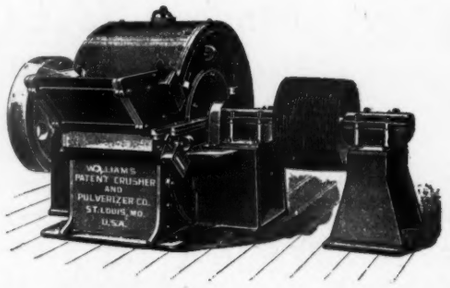
Bulletin No. 12 gives further details.

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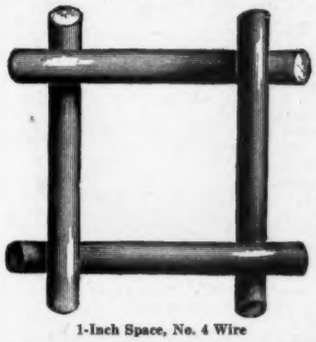

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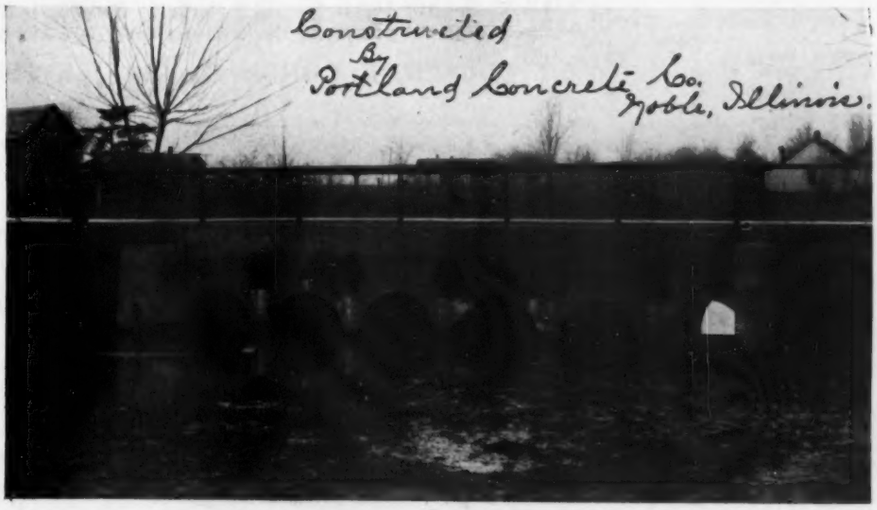


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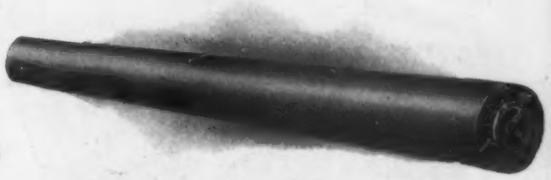

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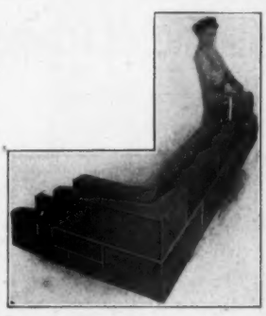

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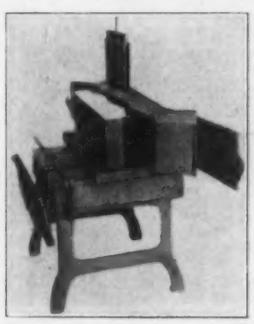
# Anchor Continuous Air Space Blocks

Now the accepted Standard Machine for making Continuous Air Space Concrete Blocks. Guaranteed Frost and Moisture Proof because there is no concrete connection between the outer and inner walls.

This cut shows The Anchor Silo, Water Tank and Granary block made with The Anchor adjustable mold box attachments. Mold box will fit any Anchor machine making any circle from 12 to 60 feet. Silos water tanks and granaries can be built from these perfect circle blocks at the cost of lumber construction.



This cut shows the **Standard Anchor Machine** released from newly-made block, ready to be carried away to cure. **Anchor Blocks** are not disturbed in releasing machine, as the plates break away with ease, and the center core collapses or shuts up as soon as eccentric is released. Center core is raised by a rope through pulley in ceiling, with equal balance weight. Anchor machines are made in two sizes: Standard machines make blocks that lay in the wall 8x24. Junior machines 8x16. Either machine makes blocks from 8 to 12 inches in width.

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These forms are made of 16-gauge galvanized steel covering, reinforced by steel on the inside. The forms are made in any size, working parts easy to reach and easy to operate. No repair expenses. Write for full particulars.

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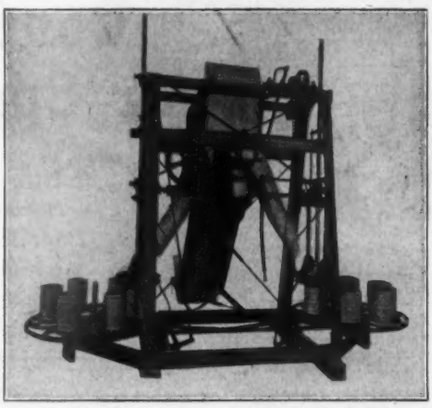
THE

**McCracken Double Tile Machine**



The McCracken Double Tile Machine makes all sizes of cement tile from 4 to 16 in. in diameter at the rate of from 10 to 20 tile per minute. Also makes building blocks or construction tile 8x8x16 at the rate of 2000 to 3000 per ten hour day.

The machine will make two different sizes of tile at the same time or building blocks and tile at the same time, or either end of machine can be used without using the other.

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Tile are packed so hard that the large sizes can be carried without the use of pallets. Machine is very simple and strong and runs very light, and elevator can be started and stopped without stopping the machine.

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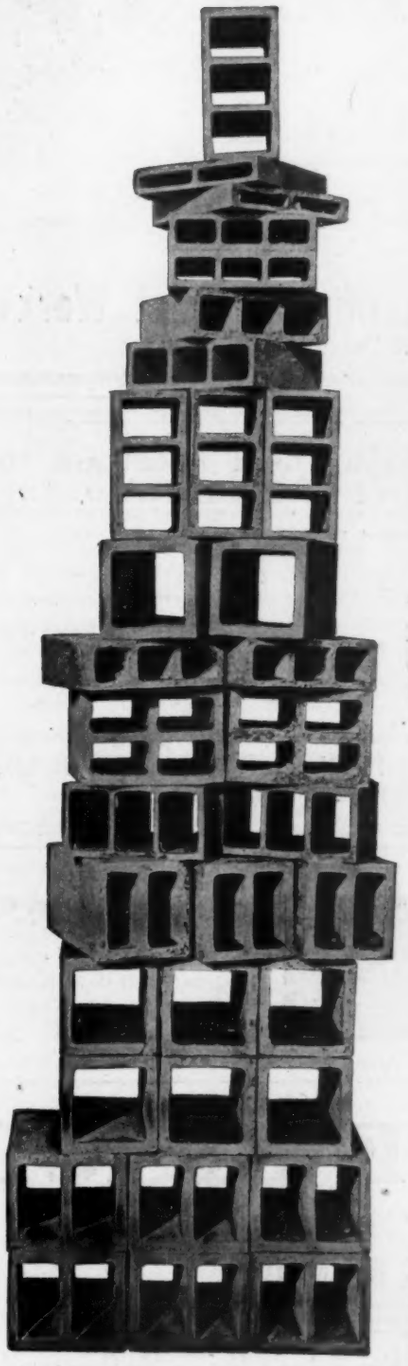

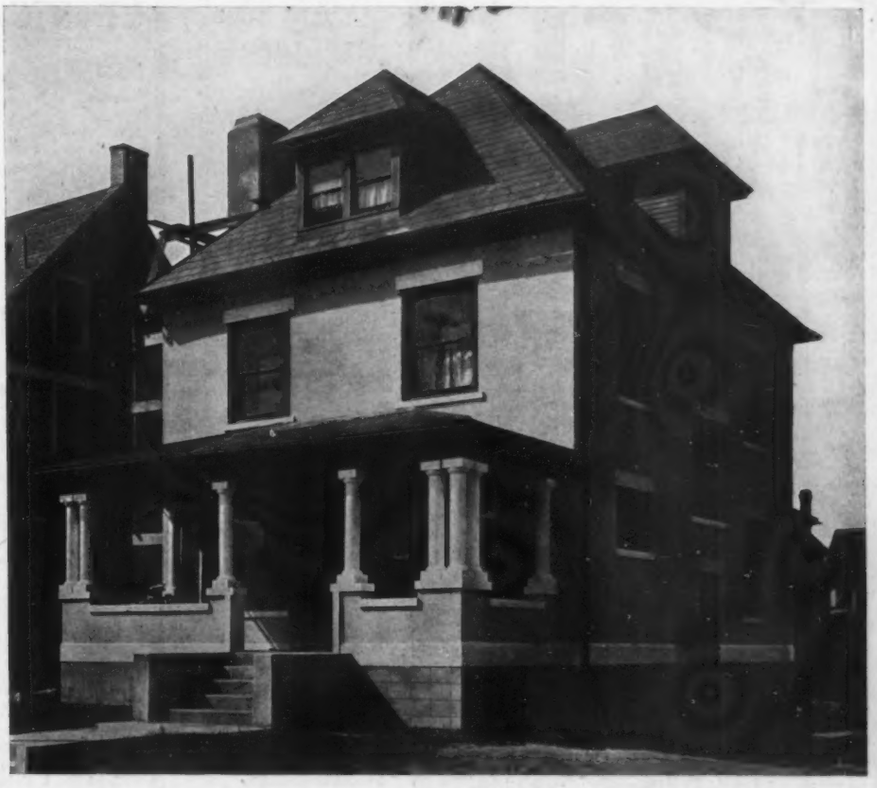

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**Youngstown, Ohio.**

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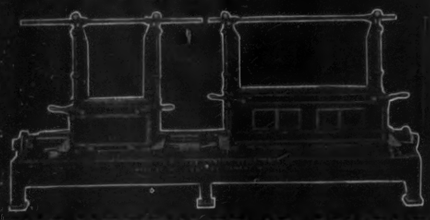

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**And not be compelled to be continually buying new machines.**

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They Never Fade

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Machines have been in constant use since July 1st, 1905, with practically no expense for repairs.

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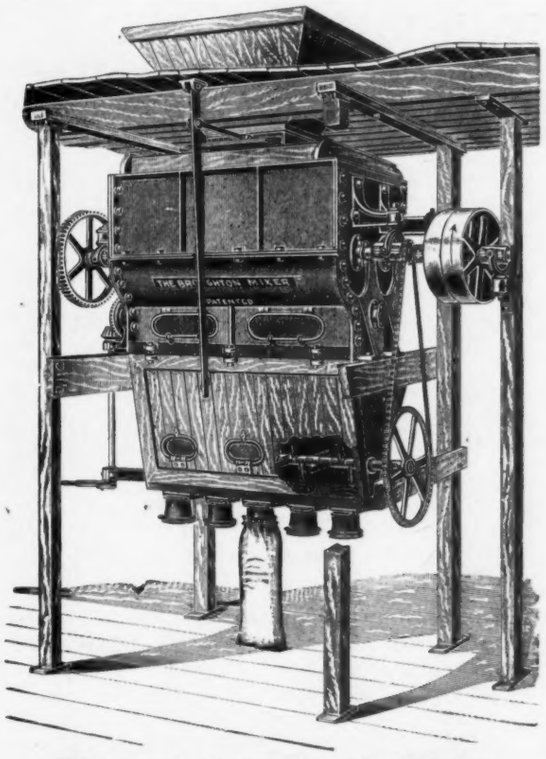

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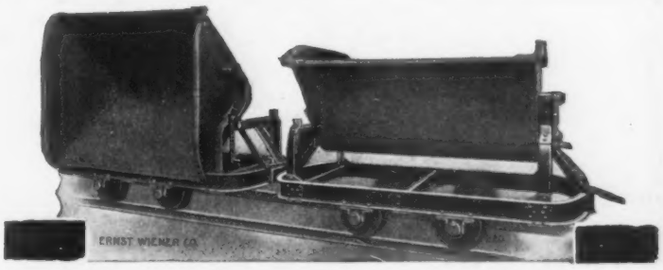

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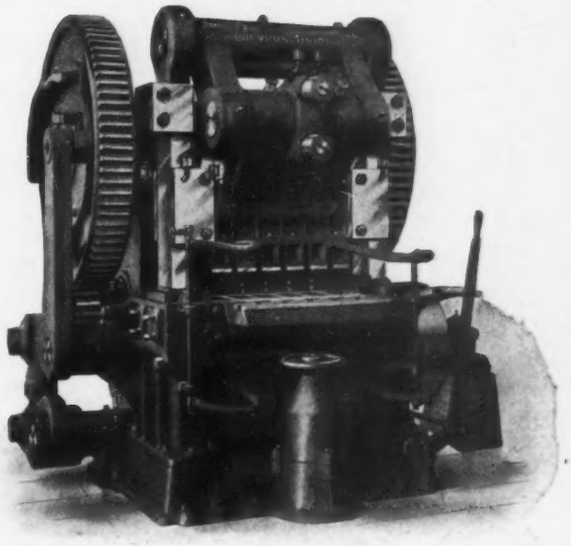

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